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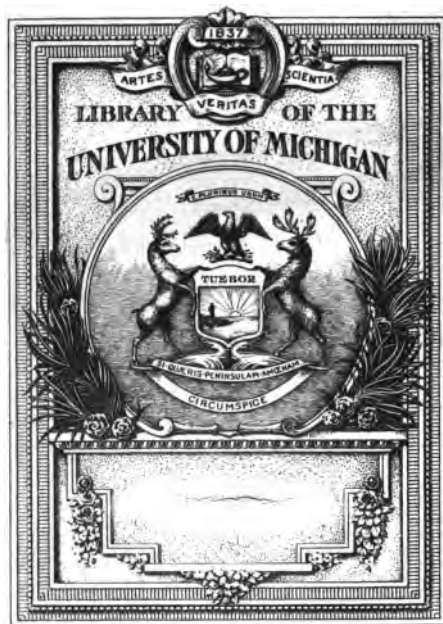
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THE
PHYTOLOGIST.

FIRST ANNUAL PART.



TANTUS AMOR FLORUM.

LONDON :
JOHN VAN VOORST, PATERNOSTER ROW.
M.DCCC.XLII.

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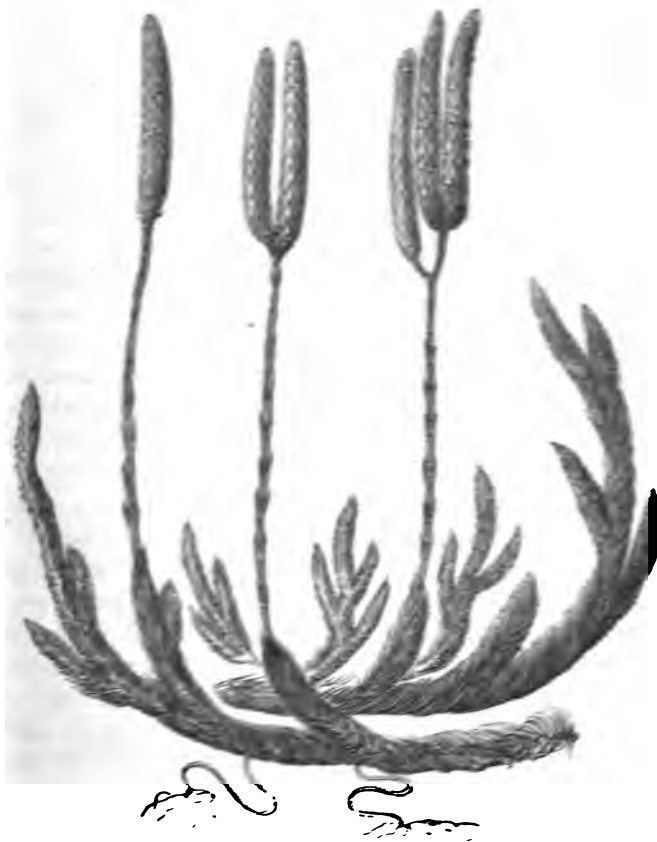
THE PHYTOLOGIST.

No. I.

JUNE, MDCCCXLI.

PRICE 6s.

ART. I. — *A History of the British Lycopedia, and allied Genera.*
By EDWARD NEWMAN.



COMMON CLUB-MOSS.

LYCOPodium clavatum of Authors.

B

LOCALITIES.

England	}	Universally distributed, on elevated moors and heaths.
Wales		
Scotland		
Ireland		

THE Common Club-moss, Wolf's-claw, or Stag's-horn is the only species of *Lycopodium* that can be spoken of as abundant in Britain. It occurs on most of our moors and heaths, especially when rather more elevated than the surrounding country; for instance, in the vicinity of London it is found on Hampstead Heath, High Beech, the Addington Hills, &c. It is abundant on nearly all the mountains of the north of England, Wales and Scotland, and is found occasionally, but less frequently, in similar situations in Ireland.

This club-moss is a handsome and interesting plant. I have heard of a lady who had a ball-dress ornamented with its graceful festoons; and Linneus relates that in Lapland he saw the boys with their heads decorated with chaplets or wreaths formed of it, the double spikes projecting on all sides, a sight which reminded him of the fauns and satyrs: * and Tragus says that the girls in Germany make it into chaplets and belts.†

Old Gerarde has some remarks on the subject which are so pleasant, that I think my readers will not object to my quoting them at length. "There is another kinde of mosse which I have not elsewhere found than upon Hampstead Heath, neere unto a little cottage, growing close upon the ground amongst bushes and brakes, which I have shewed unto divers surgeons of London that have walked thither with mee for their further knowledge in simples, who have gathered this kinde of mosse, whereof some have made them hatbands, girdles, and also bands to tye such things as they have before gathered, for the which purpose it most fitly served; some pieces whereof are six or eight foot long, consisting as it were of many hairy leaves set upon a tough string, very close couched and compact together, from which is also sent forth certain other branches like the first: in sundry places there be sent down fine little strings, which serve instead of roots, wherewith it is fastened to the upper part of the earth, and taketh hold likewise upon such things as grow next unto it. There spring also from the branches bare and naked stalkes, on which grow certaine eares as it were like the catkins or blowings of the hasell-tree, in

* Vidi aliquando, grato spectaculo, pueros Lapponum ex hoc musco sarta conficisse capitique suo eadem imposuisse, horrentibus undique spicis distichis, hirsutie Faunis et Satyris similes.—'Flora Lapponica,' p. 339.

† Virgines et sarta et cingula ex hoc musco conficiunt.—'De Stirp. Nom.' 554.

shape like a little club or the reed mace, saving that it is much lesser, and of a yellowish white colour, very wel resembling the claw of a wolfe, whereof it tooke his name, which knobby catkins are altogether barren, and bring forth neither seed nor floure." *

It seems rather unaccountable that neither Gerarde, nor his able editor, Johnson, to whom, by the way, the great herbalist is indebted for the better half of his fame, should have so entirely overlooked the minute but multitudinous seeds, which have attracted the attention of so many other botanists. Olearius appears to have been the first to mention these seeds, and a curious purpose to which they have been applied. This author devotes the 24th chapter of the 4th book of his Itinerary to the fire-works of Ardebil, a town in Persia; and he believes them produced by the seeds of this Lycopodium. He observes, "We saw at a distance some flames rise suddenly in the air, and as suddenly disappear, and we supposed them to be produced by the Russian *Plaun*, which is much used for this purpose. The *plaun*, to explain more fully, is nothing more than a yellow dust which is beaten out of the *Muscus terrestris*. The moss is called in herbals *beerlap*† or *Devil's-claw*, and grows commonly in fir and birch woods, and also on waste lands; I have frequently met with it in the Russian and Livonian woods. It throws out twin cones, which, when ripe in August, are collected in large quantities and dried in furnaces; the powder is then beaten out and sold by the pound. I bought several ox-bladders full, and brought them home with me. Its other uses are in green wounds, recent bruises, and for chafed children, inasmuch as it is of a drying and healing nature, and it is moreover used by the Russians in the Chaldaic fire above spoken of. The powder is placed in a tin cases, of elongate conical form, about half an ell in length, or sometimes shorter; this is taken in the hand, and a burning light or torch is placed at the aperture, the case is then waved about in the air, so that the *plaun* flows through the aperture, and then ignites, producing a bright flame: when the motion is rapidly repeated, so that one flame follows another, it produces a very extraordinary effect. Fine fun may be made in company, if a tobacco-pipe be secretly filled with this *plaun*, and held at the light and blown into; a strong flame, suddenly and unexpectedly to those sitting around, proceeds from it, and that it may produce a great noise, they mix it with powdered birch-leaves. The *plaun*-powder has the property of igniting only when it is dusted through a flame in the air, and not otherwise, even if a torch

* Ger. Em. 1562.

† Tragus figures the plant under this name.

or light be placed in it, or it be cast on live coals. In case the plaun is not to be obtained, finely powdered sweet-scented gum or rosin will answer the purpose, and this, besides the amusement, produces a pleasant smell. The plaun has no particular smell and produces no smoke."* Subsequent writers appear to have curtailed and garbled these interesting remarks, rather than verified them by their own observations.

In some of the chemists' shops of this country the seed of *Lycopodium* is kept as an article of sale; and Mr. Luxford, who has tried the experiment, bears ample testimony to its inflammable property. The demand for this article, as may be supposed, is extremely limited, yet a friend has informed me that he is acquainted with a chemist who has received an order for several pounds weight of it; the purpose for which this large quantity was required is unknown. Sir J. E. Smith says that the seeds are still sold in the shops in Germany for the purpose of producing artificial lightning on the stage:† this use must however be very limited, on account of the difficulty of procuring the seed in any quantity; and moreover, as mentioned above by Olearius, pulverised rosin is found to be a cheap and efficient substitute. I have lately been informed that these seeds, spread upon a plate of metal, have been employed in Chladni's lectures to illustrate the vibration produced by sound.

The medical properties of the common club-moss have been greatly extolled by our earliest writers. Tragus gives a flaming account of its virtues, the chief of which seem to be the removal of calculus by comminution, and the cure of gout;‡ Matthiolus,§ Camerarius,|| Lobel,¶ Tabernæmontanus,** Ray,†† and Dillenius,‡‡ appear to have taken these virtues for granted, as they have copied them without hesitation. Ray indeed adds several others, and asserts that a decoction of its leaves was used in Poland as a cure for a disease called Plica, whence, he observes, the plant has been named Plicarius;§§ and John Bauhin, in addition to many other valuable properties, states

* Olearius, 'Itin. Muscovit. Persic.' lib. iv. cap. 24. † Eng. Fl. iv. 331.

‡ Vini decoctus ac potus calculos comminuit; * * nonnulli etiam aquam ex eo distillant, adeadem affectionem. Muscus contusus aut in vino decoctus dolorem et inflammationem sedandi vim obtinet, ideoque podagræ calidæ impositus prodest. Tragus, 555.

§ Matthiolus, Valgr. i. 57. || Camerarius, Epitome, 32. ¶ Lobelius, 645.

** Tabernæmontanus, 1201. †† Ray, Hist. 120. ‡‡ Dillenius, Hist. Musc. 441.

§§ Apud Ruthenos et Lithuanos ad Plicam morbum gentibus illis endemium adhibetur, unde Plicarium et Cingularium eum nominant. Syn. 107.

that loose teeth may be fixed by washing the mouth with a decoction of the seed in red wine.* I am, however, inclined to think that its use in either of these capacities must have been much less extensive than its historians imagined; indeed, from certain references, it seems not improbable that many of its supposed virtues owe their origin to a passage in Dioscorides, on a plant which he calls *Muscus marinus*, and which, beyond all doubt, is one of the Algæ. Mr. Ward informs me that whatever may have been its pristine fame, it holds no place in the modern Pharmacopœia. Tragus observes that the Germans call the plant Weingrein, from its power of restoring injured wine.† The same observation is repeated by his successors.

Lightfoot, in his 'Flora Scotica,' says that the Swedes make mats of the club-moss to rub their feet on; if this be true, it is remarkable that the fact should have escaped the notice of such observant men as Linnæus and Wahlenberg; neither of whom makes the slightest allusion to the subject. Is it possible that Lightfoot has made free with the remark in Wahlenberg's 'Flora Suecica,' that the Swedes call the plant *Mattegräs*, ‡ a most appropriate name, being simply equivalent to matted grass, and not at all implying its employment in the manufacture of mats?

The older botanists have generally called this species *Muscus terrestris*, or *Muscus clavatus*: Cordus terms it *Chamæpeuce*, or dwarf fir: and all writers since the establishment of the Linnean binominal nomenclature, have agreed in naming it *Lycopodium clavatum*. It is figured by Tragus, Lobel, Tabernæmontanus, Cordus, Gerarde, John Bauhin, Plukenet, Matthioli, Camerarius, Dillenius, &c., but with the exception of the figure by Dillenius,|| none of them give a very accurate idea of the plant; of later representations, that in the 'Flora Danica'¶ is perhaps the best, but even this does not approach in accuracy or freedom of drawing the admirable figure by Dillenius.

The roots of this species are very tough, wiry, and pale in colour; they are generally nearly straight and simple for an inch or more, then suddenly divided and tortuous; they are usually placed singly and at rather long distances from each other, and do not penetrate deeply into the earth, but yet fix the creeping stem most firmly, and prevent any

* In eodem [rubro] vino coctus, si eo ablatur os, tremulos dentes confirmat. Hist. iii. 759.

† *Muscus terrestris* vino pendulo impositus, intra paucos dies illud restituit. * * Hinc quidem apud Germanos muscum terrestrem Weingrein nominant. Tragus, 555.

‡ Suecis *Mattegräs*. Wahlenberg, 'Flora Suecica,' 684.

|| 'Historia Muscorum,' tab. lviii. fig. 1.

¶ Tab. 126.

injurious action from the wind. It has been supposed that on lofty mountains this plant, forming as it does a compact matted turf, whence the Swedish name, serves to bind the surface of the soil more closely together, and thus secure it from the continued crumbling away to which, in exposed situations, it is constantly liable, from the effects of wind and rain.

The stem is procumbent and repeatedly branched, the branches being at first slightly elevated, but soon becoming completely prostrate. It extends to a great length; I have frequently found plants on Crooksbury Hill, near Farnham, in Surrey, spreading to a circumference of ten or twelve yards. The whole plant has a rigid, harsh, and wiry feel when handled, even in a living state, and more especially when dried. When the plant is about to produce seed, there are thrown out from various parts of its branches, spikes of about an inch in length, of a pale sulphur colour, and in shape somewhat resembling catkins; these are usually double, but some few are single, and a still smaller number treble; they are erect and straight until the seed has been shed, when they become curved; they are situated on a stalk about twice their own length, and nearly naked, a character which is sufficient to distinguish this from any other of our indigenous species, and which gives to the plant, when growing luxuriantly, as I have seen it at Cwm Idwal and other parts of Caernarvonshire, a most striking and beautiful appearance.

The whole of the branches are densely covered with narrow, flat, ribless, smooth leaves, the edges of which are slightly toothed, and the tips terminate in a filamentous point: the leaves as well as the stems are persistent; I have observed them in March and April perfectly uninjured by our severest winters. On the stalks supporting the spikes the leaves are longer, narrow, and of a pale yellowish green colour; they are closely pressed against the stalk, and disposed somewhat in whorls, thus giving to the stalk the appearance of the stem of an *Equisetum*; they also in a great degree want the long filamentous points which are invariably present on the leaves of the prostrate branches, to the extremities of which they often give a hoary appearance. In the spike itself the leaves are very much broader at the base, being altogether of a more triangular figure, and assuming the appearance and office of bracts; their colour is a pale yellow, and their margins are membranaceous and serrated. After the seed has escaped, these leaves or bracts become reflexed, giving to the spike a very altered character and appearance.

The thecæ are somewhat reniform, perfectly sessile, and of a pale

yellow colour: they are situated at the base of the bracts; each is two-valved, and filled with numerous minute and almost impalpable seeds, from which in cultivation young plants may be raised with little difficulty.

EDWARD NEWMAN.

(To be continued).

ART. II. — *Descriptions of two new species of Maxillaria, from the Organ Mountains, Brazil.* By FREDERICK WESTCOTT, Esq., A.L.S., &c.

Birmingham, March 26th, 1841.

Sir,

The two new Maxillarias described below, are natives of the Organ Mountains; and, with many other apparently new species, were sent over from Brazil to the Birmingham Horticultural Society, in the spring of 1840, by E. W. Fry, Esq.

Yours &c.

FRED. WESTCOTT.

To the Editor of 'The Phytologist.'

Natural Order.—ORCHIDACEÆ, *Lindl.* Tribe.—VANDEÆ, *Lindl.*

Genus.—MAXILLARIA, *Ruiz et Pavon.*

Max. barbata. Pseudo-bulbis inæqualitèr quadrangularibus, corrugatis, vaginatis: foliis ovatis, costatis, acutis: floribus racemosis; sepalis inæqualibus, petalis majoribus, lateralibus explanatis, apice subinvolutis; labello cucullato, trilobato, barbato, margine crispo, apice gibboso, disco carnosio.

Pseudo-bulbs quadrangular, wrinkled; at the apex of each is a cup-like cavity, which surrounds the base of the leaves when present; sheaths twice as long as the pseudo-bulb. Leaves solitary, ovate, ribbed, acute. Scape arising from the base of the pseudo-bulb, slender, smooth, and about six inches high. Flowers about eight, yellow, disposed in a raceme. Bracts about two lines long, brown and scarious at the edges, and closely embracing the peduncle. Peduncle about one inch long. Sepals unequal, yellow, involute at the apex, the lateral ones spread out, the upper one more or less connivent. Petals obtuse, of the same colour as the sepals, but much smaller. Labellum

on as many separate scapes ; all these single-flowered scapes springing from the same point amongst the leaves clustered on the head of the root, or rather, subterranean stem. The calyx is intermediate between those of the cowslip and primrose. The corolla has the deep colour of the cowslip, but in size, and in the flatness of the limb, approaches much nearer to that of the primrose. The leaves of the present year have the colour and nearly the form of those of the cowslip, but two or three large half-withered leaves, of last year as far as can be now ascertained, resembled more decidedly those of the primrose. If these old leaves had not been seen, I should have pronounced the plant a cowslip, notwithstanding the size and flatness of the corolla, and the few single-flowered scapes.

The specimen exhibited at the meeting was only half the plant ; the other part is planted in my garden, where I hope to watch its flowers next spring.

After finding this one specimen, I examined the cowslip and primrose localities all around with renewed diligence, and found a second oxlip a mile or two from the first, and in a situation very different, except in being damp. It was growing amongst many cowslips in a pasture field, with primroses not many yards distant, and in every respect resembled the other cowslips, except that the corolla had the pale tint and almost the shape of the primrose ; being considerably larger than the cowslip, but smaller than the primrose. This plant had been crushed under the foot of a cow ; and its leaves were small and the scapes short, and bearing few flowers : it was obviously injured and unhealthy.

Primroses, self-sown, spring up freely in my garden, and the seedlings occasionally produce umbelliferous scapes ; but in other respects they have hitherto retained all the characters of the wild primrose, except varying in colour from pale yellow to different shades of red, and occasionally exhibiting monstrosities in the calyx.

I may remark that young botanists sometimes mistake a late state of the common cowslip for the oxlip. After the germen is fertilized, the flowers of the former become erect ; the limb of the corolla loses its concave form, and when large and vigorous it bears at this stage some resemblance to a small primrose flower.

Thames Ditton,
April 19, 1841.

HEWETT C. WATSON.

ART. IV. — *Notice of 'A Flora of Shropshire.'* By W. A. LEIGHTON, B.A., F.B.S.E. London: Van Voorst. 1841. *With additional Notes on many of the Plants described in the Work.*

PREVIOUSLY to the appearance of this excellent work, there was no regular Flora of Shropshire in existence; the only illustrations of the Botany of that county being contained "in the county lists of plants in 'Camden's Britannia,' the 'Botanists' Guide' [by Turner and Dillwyn], and the 'Agricultural Survey,' and the few notices scattered throughout the works of How, Ray, Purton, Withering and Smith:" and the only record left by any botanist of the result of his investigations in this district, is a MS. catalogue of the plants of Shropshire, with their localities, compiled by the Rev. E. Williams, which still remains unpublished in the hands of the Right Hon. Lord Berwick, who liberally allowed Mr. Leighton to make unreserved use of its contents. In this catalogue are enumerated 715 species of flowering plants and 300 species of Cryptogamia.

The present volume of the 'Flora of Shropshire' is complete in itself, and is restricted to the Vasculares, of which it contains characters and full descriptions of 876 species, arranged according to the Linnæan system, with synonymes and references; and a copious list of localities is attached to the less common plants.

It was at first the intention of the author, that this work should "appear as a mere catalogue of plants, with localities and observations," but he was ultimately induced to present it in the more extended form of a descriptive Flora. To render it "more complete and comprehensive than could be effected by his single and unaided efforts, circulars, containing queries and heads of enquiry, were distributed, to which many friends of science resident within the district most cheerfully and liberally responded."

In the list of friends to whom the author returns thanks for assistance rendered in this and other ways, we notice the names of many of the first botanists of the day, including Professors Don, Graham, Lindley and Nees ab Esenbeck, Dr. Bromfield, Messrs. Babington, Borrer, Bowman, Dovaston (the friend and biographer of Bewick), Forster, and E. Lees.

"In the preparation of the work the invaluable Floras of Smith [2nd ed.] and Hooker [3rd ed.] were taken as text-books; and the Shropshire plants have been compared with their descriptions, and also, when requisite, with the works of Koch, Fries, Reichenbach, Bluff and Fingerhuth, and other continental botanists. The descrip-

tions have been, so far as practicable, invariably drawn up from careful examination of living or dried specimens, at the same time adopting such portions of the information conveyed by these authors, as a comparison with nature dictated, and rejecting it where apparently new and better characters displayed themselves."

Several valuable data towards the elucidation of the geographical distribution of the Shropshire plants, have been communicated by Dr. T. O. Ward, of Shrewsbury; and in a complete index of localities the geology of the county is exhibited from Murchison's 'Silurian Regions:' the geological relations of the plants being by this means clearly pointed out.

Many plants are recorded as occurring in Shropshire, which have been discovered and published as British since the appearance of Sir J. E. Smith's 'English Flora,' in 1828. The detection of these new forms, whether regarded as species or varieties, is the result of that spirit of enquiry and research which is now directing the labours of the most eminent of our British botanists, and which we believe to have sprung, in a great measure, from a desire to enable the progress of Botany in this country, to keep pace with its rapid advance on the continent. The following is a list of such of the species new to Britain as are described in the work before us; but the book itself must be consulted in order that an adequate idea of the mass of valuable information contained in it may be formed.

<i>Veronica polita</i> , <i>Fries.</i>	<i>Rubus Radula</i> , <i>Weihe et Nees.</i>
<i>Buxbaumii</i> , <i>Tenore.</i>	<i>Leightoni</i> , <i>Lees, MS.</i>
<i>Valerianella carinata</i> , <i>Lois.</i>	<i>Köhleri</i> , <i>Weihe et Nees.</i>
<i>Potamogeton oblongus</i> , <i>Viviani.</i>	<i>echinatus</i> , <i>Lindl.</i>
<i>Viola arvensis</i> , <i>Murray.</i>	<i>fusco-ater</i> , <i>Weihe et Nees.</i>
<i>Cuscuta Epilinum</i> , <i>Weihe et Nees.</i>	<i>pallidus</i> , <i>Weihe et Nees.</i>
<i>Rumex pratensis</i> , <i>Mert. et Koch.</i>	<i>Schleicheri</i> , <i>Weihe et Nees.</i>
<i>Dianthus plumarius</i> , <i>Linn.</i>	<i>dumetorum</i> , <i>Weihe et Nees.</i>
<i>Spergula vulgaris</i> , <i>Bonningh.</i>	<i>Ballota ruderalis</i> , <i>Fries.</i>
<i>Reseda alba</i> , <i>Linn.</i>	<i>Cardamine sylvatica</i> , <i>Link.</i>
<i>Cerasus Avium</i> , <i>Mærch.</i>	<i>Malva vulgaris</i> , <i>Trag.</i>
<i>Rubus fissus</i> , <i>Lindl.</i>	<i>Hypericum tetrapterum</i> , <i>Fries.</i>
<i>discolor</i> , <i>Weihe et Nees.</i>	<i>Senecio erraticus</i> , <i>Bert.</i>
<i>carpinifolius</i> , <i>Weihe et Nees.</i>	<i>Habenaria chlorantha</i> , <i>Bab.</i>
<i>vulgaris</i> , <i>Weihe et Nees.</i>	<i>Callitriche platycarpa</i> , <i>Kun.</i>
<i>villicaulis</i> , <i>Weihe et Nees.</i>	<i>pedunculata</i> , <i>DeCand.</i>

We have here a list of upwards of thirty new plants found in the county, thirteen of which belong to the genus *Rubus*. Whether many of the numerous reputed species of this genus will ultimately be allowed to retain that rank, is at present exceedingly doubtful. In

hardly any genus throughout the whole range of botanical science, does so much uncertainty prevail with regard to the limits of species, as in the genus *Rubus*: and it really must afford great comfort to botanical tyros, who have been puzzled by these most vexatious plants, to find that the great masters in Botany, — those who have paid particular attention to this difficult genus, are so completely at fault in their endeavours to determine the species, as the conflicting opinions appended to the descriptions of the forms arranged under the fruticose or bramble division of the genus, most evidently show them to be. Nor, after the perusal of these opinions, can we feel any surprise at finding the following remarks from the pen of Mr. Leighton himself, who is well known as an ardent botanist. “To the examination of the Shropshire brambles I devoted two successive summers, and collected specimens of every form which came under my notice, in which any conspicuous differences were observable. But, notwithstanding some care and attention, the strange and inconstant manner in which similar forms, and even what were apparently distinct ones, in innumerable instances varied or ran into each other, precluded me from arriving at any definite conclusions as to the limits and true characters of the estimated species, and in fact left me in a complete maze of doubt and ignorance whether they should not all be considered as modifications endlessly varied of one and the same species.” Mr. Leighton then distributed his specimens to Nees von Esenbeck, Professor Lindley and Mr. Borrer, and solicited their opinions. “In consequence, however, of their severally referring the same forms, in many instances, to different and opposite species, I found that no other alternative was left to me than to describe from the specimens submitted to them the various forms of the genus, and append to each description their opinions and remarks.”

We are very glad that Mr. Leighton has prefaced these descriptions with the well-known and often-quoted observations on the genus by Mr. Borrer* and Professor Lindley,† because we believe that the fact of the uncertainty respecting species which prevails in many British genera, though perhaps in none to so great a degree as in *Rubus*, cannot be too frequently or too prominently brought forward. For as in politics “agitation” is the watch-word when a party would attain an object on which they have set their affections, even so must the same means be resorted to whenever the energies of the cultivators of science are to be awakened, and their exertions directed to any desired

* Hook. Br. Fl. i. 245.

† Synopsis, 2nd. ed. 91.

end. The paramount importance of attention to "the limits within which a species may vary," has been most ably argued by the Rev. Professor Henslow in 'The Magazine of Zoology and Botany' for August, 1836, and 'The Magazine of Natural History,' iii. 406; and unless, as recommended in those valuable communications, a series of experiments and observations be instituted and carefully conducted, having for their express object the elucidation of this interesting, but at present most unsettled question; and unless, in addition to direct experiment, all the observed variations from what are considered the normal forms of plants, with the circumstances accompanying such variations, be carefully and precisely recorded;—we fear it will be long ere an approximation to the truth will have been attained. Our pages will ever be open to the reception of the results of such investigations; and it will give us great pleasure if by our means one single fact should be added to the existing stores of botanical knowledge, which may tend, however remotely, to the attainment of that important desideratum—the more exact determination of species.

It is not so easy to make suitable quotations from the pages of a Flora as from those of a connected narrative, whether in poetry or prose, and the illustrative observations contained in the work before us are all so valuable, that we find some difficulty in determining which to select: we must, however, lay before our readers some few specimens of the highly interesting contents of the book, at the same time taking the liberty to introduce occasional remarks on such of the plants of Shropshire as have fallen under our own observation in other parts of the country.

Veronica scutellata, Linn. "A variety with the whole herbage hairy occurs on some boggy ground north of Bomere Pool, and at the east end of Blackmere." As Mr. Leighton does not mention the colour of the flowers of this variety, we suppose it to be the same as that of the plant in its usual state. Several years ago we found, in some boggy ground near Bloxwich, in Staffordshire, two specimens of what appears to be a weak, prostrate variety of this species, with the leaves short, ovate-lanceolate and rather hairy, and the flowers *blue*: the plants, except in the colour of their flowers, closely resembling the *Ver. parmularia*, of Poit. et Turp. 'Fl. Paris.' tab. 14, which is *Ver. scutellata* β of 'Eng. Fl.' i. 21.

Veronica polita, Fries, the *Ver. agrestis* of 'Eng. Bot.' 783, may readily be distinguished from that species by the bluish green hue and less succulent appearance of the whole plant, in which we have never

observed any disposition to assume a red or purple colour, as in certain situations *agrestis* may frequently be seen to do; the peduncles in *agrestis* are shorter than the leaves, and the cells of the capsule contain few seeds, whereas in *polita* the leaves are shorter than the peduncles and sharply serrated, and the cells of the capsules are many-seeded. These two species are admirably figured in 'English Botany,' *polita* in tab. 783, and *agrestis* in tab. 2603 (Suppl.) In the Shropshire Flora the latter species is said to be "common," while the former is described as being "rare;" we have observed these conditions to be reversed in many parts of Surrey.

Veronica Buxbaumii, Tenore, 'Fl. Neap.' i. 7; 'Eng. Bot. Suppl.' 2769; the *Ver. filiformis* of Johnston, 'Fl. Berw.' i. 225, and Hook. 'Br. Fl.' ed. 1, p. 6; distinguished from *Ver. polita* and *agrestis*, to both which it is allied, by the form of the capsule, which is compressed, obcordate, and in breadth nearly double its length, with its lobes divaricated, sharply keeled, smooth and veiny. We possess specimens raised from seeds which had been sent from Sussex by Mr. Borrer, the original discoverer, to one of our friends, (now deceased); these seedlings exhibit all the characters of their parents. Some botanists look upon this as a doubtfully-indigenous species, believing it to have been either introduced with crops, or to have escaped from cultivation; in a paper read before the Botanical Society, Nov. 10, 1836, after giving two new Scottish localities for this species, Professor Graham remarks that he "had not seen either station, but was inclined to believe with Dr. Dewar [the authority for these localities], that the plant had not been introduced, because it had only lately been cultivated, and probably has not been so yet near either of these stations."—First Report, p. 34.

Pinguicula vulgaris, Linn. Mr. Leighton observes,—"On the gradual decay of the leaves in autumn, small, round, leafy buds or hibernacula are formed, which survive the winter, and are capable of developing new plants in the spring." Our excellent friend Mr. Cameron, of the Birmingham Botanic Garden, first pointed out to us these hibernacula on Sutton Common in Warwickshire, April 17th, 1835; when we also had the gratification of finding in flower, for the first time, the local *Eriophorum vaginatum*, the silvery grey glumes of its spikes being nearly hidden by the prominent yellow anthers. On the 23rd of May in the same year we paid a second visit to the Common, and found the *Eriophorum* in seed, with its beautiful silky heads waving in the breeze; the *Pinguicula* was then in full flower, as were also *Eleocharis cæspitosa*, *Vaccinium Vitis-idæa*, *Empetrum nigrum*,

and several other plants which rewarded our researches the same day. One specimen of *Pinguicula vulgaris* which we then gathered, has the flower-stalk divided, at about half an inch from the base, into four branches, of different heights, each bearing a solitary flower at the summit.

Mr. Leighton does not mention the irritability exhibited by this species of *Pinguicula*, nor is it alluded to by either Smith or Hooker. When the plant is dug up the leaves bend backwards and downwards, so as completely to conceal the root; the flower-stalks also become curved. This action we have frequently observed in the *Pinguicula vulgaris*; but as we have never had an opportunity of collecting either of the other British species, we are not aware whether they also exhibit the same irritability; the leaves of our specimens of *Pin. alpina* are however deflexed quite as much as those of *vulgaris*, whence we infer that the two species are thus acted on in an equal degree; in our specimens of *Lusitanica* and *grandiflora* the leaves are not at all deflexed.

Rhynchospora alba, Vahl. Two varieties of this species are recorded as growing with its usual form, and in nearly equal abundance, at Bomere Pool and on Twyford Vownog, near Westfelton; one with the corymb as long as the outer bracteas, and the other having the spikelets in a somewhat oval head, shorter than the outer bracteas. For other particulars relating to this species and *Rhyn. fusca*, see 'Mag. Nat. Hist.', viii. 675.

Referring to *Festuca pratensis*, Huds. and *Fes. arundinacea*, Schreb. (*Fes. elatior*, Linn.; E. Fl. i. 148; E. Bot. 1593; Hook. Br. Fl. 50), at p. 51, Mr. Leighton remarks, "After a careful comparison of the two preceding very closely allied species, I have been unable to discover any satisfactory characteristic distinctions, and am induced to consider them only as modifications of the same plant. The chief differences assuredly consist in the larger size of *F. arundinacea*, the ovato-lanceolate not linear form of the spikelets, and the number of florets, yet all these may possibly depend on soil and situation producing a more vigorous growth and a suppression of development in the florets. No dependance can be placed on the awns of the corolla, since they are equally present or absent in both plants, nor on the roots, which are in both somewhat creeping and the fibres downy. In deference, however, to the authority of our British Floras, they are here retained as separate species."

(To be continued).

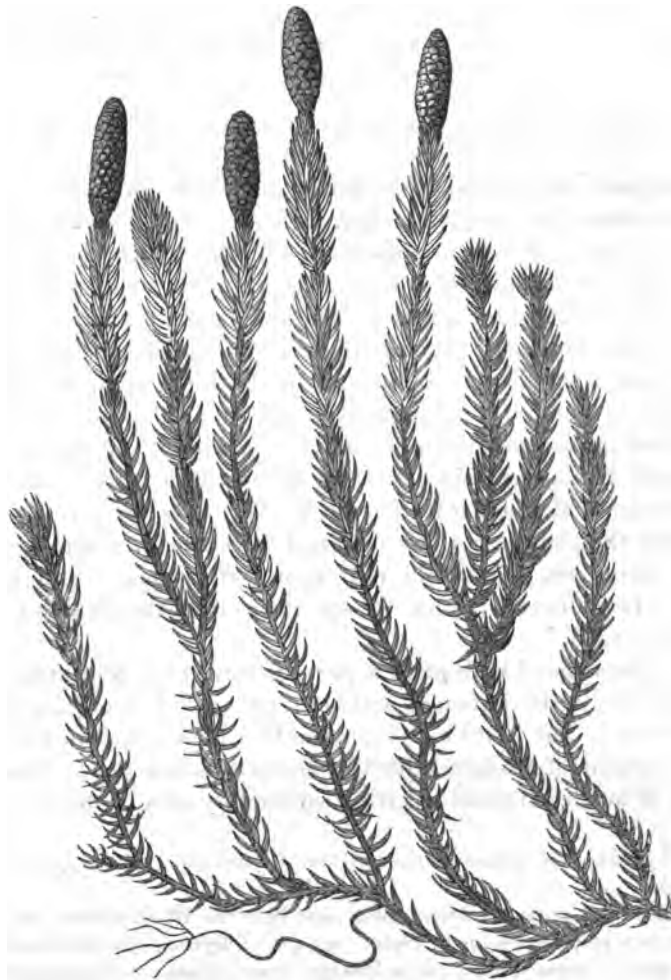
THE PHYTOLOGIST.

No. II.

JULY, MDCCCXLI.

PRICE 6D.

ART. V.—*A History of the British Lycopodia, and allied Genera.*
By EDWARD NEWMAN. (Continued from page 7).



INTERRUPTED CLUB-MOSS.

LYCOPODIUM ANNOTINUM of Authors.

somewhat imbricated. Smith says that the leaves are ranged in five rows; and an attentive examination of the plant leads one to agree with this remark, still the character is not noticeable, and can only be traced with difficulty.

The spike is oblong, terminal, and completely sessile; the long peduncle, which, in the common club-moss, separates the spike from the leafy part of the branch, is entirely wanting, a character amply sufficient to distinguish this species from the foregoing. The leaves or bracts in the spike are nearly round, yet have a pointed apex; their edges are membranous and jagged, they become reflexed when the seed is shed: in the axil of each is situated a large, conspicuous, reniform capsule, which, when ripe, opens transversely, allowing the escape of numerous minute, sulphur-coloured seeds.

(To be continued).

ART. VI. — *List of Rare Plants found in Devonshire, in the year 1840.* By N. WARD, Esq.

Wellclose Square, June 19, 1841.

SIR,

During the summer of 1840 my father and I made a botanical excursion into Devonshire, and with the kind assistance of Mrs. and the Misses Griffiths and the Rev. W. S. Hore, we succeeded in obtaining many valuable plants, a selection from which I hand you below.

Yours truly,

N. WARD.

To the Editor of 'The Phytologist.'

At or within three miles of Torquay.

Brassica oleracea.

Helianthemum polifolium. This species grows in profusion, and supplies the place of *Hel. vulgare*, which is not to be found here.

Lavatera arborea.

Trifolium suffocatum. Not growing on the sandy sea-shore, but about half a mile inland, in a peat soil, in company with *Trifolium subterraneum*.

Lotus hirsutus.

Vicia sylvatica.

Crithmum maritimum.

Bupleurum aristatum.

Trinia glaberrima.

Smyrniolum Olusatrum.

Rubia peregrina.

Chrysocoma Linosyris.

Lithospermum purpureo-cæruleum.

Anchusa sempervirens.

Orobancha major.

- | | | | |
|--------------------------|-----------------|------------------------------------|---------------------|
| Orobanche barbata. | On the roots of | Beta maritima. | It is not generally |
| ivy. | | known that this plant is an excel- | |
| Melittis Melissophyllum. | | lent substitute for spinach. | |
| Leonurus Cardiaca. | | Euphorbia Portlandica. | |

Near Holne Chase, and on the borders of the River Dart.

- | | | |
|----------------------|--------------------------------------|------------------|
| Hypericum elodes. | Osmunda regalis. | It is remarkable |
| Campanula hederacea. | that this beautiful fern, which | |
| Anagallis tenella. | grows with extreme luxuriance on | |
| Scutellaria minor. | the banks of the Dart, is very rare- | |
| Myrica Gale. | ly seen on the banks of the East | |
| | or West Lyn. | |

At or within eight miles of Devonport.

- | | |
|------------------------|----------------------------|
| Eryngium campestre. | Habenaria bifolia. |
| Verbascum virgatum. | Lastræa Oreopteris. |
| Blattaria. | Asplenium lanceolatum. |
| Pinguicula lusitanica. | Hymenophyllum Tunbridgens. |
| Bartsia viscosa. | Wilsoni. |
| Sibthorpia europæa. | Schistostega pennata. |

In the vicinity of Barnstaple.

- | | | |
|---------------------|--------------------------------|-----------------------|
| Aconitum Napellus. | Listera cordata. | In considerable abun- |
| Matthiola sinuata. | dance on Coddon Hill. One spe- | |
| Viola Curtisii. | cimen from a number that were | |
| Euphorbia palialis. | collected, had three leaves. | |

At or within six miles of Lynton (north Devon).

- | | |
|---------------------------------------|---------------------------|
| Meconopsis cambrica. | Bryum palustre. |
| Euphorbia hiberna. | turbinatum. |
| Allosorus crispus: in company with | Bartramia fontana. |
| Polytrichum alpinum. Only one | arcuata. |
| plant was discovered. | Hypnum dendroides. |
| Asplenium septentrionale: growing in | Polytrichum urnigerum. |
| tolerable plenty in the crevices of a | alpinum. |
| loose stone wall, facing the north, | Trichostomum polyphyllum. |
| at an elevation of between 1000 | |
| and 1100 feet. | |

At Ilfracombe.

Adiantum Capillus-Veneris, in four distinct localities.

At Clovelly.

- | | |
|---------------------------|----------------------------|
| Daltonia heteromalla. | Hypnum purum (in fruit). |
| Gymnostomum viridissimum. | loreum. |
| fasciculare. | filicinum. |
| truncatum. | denticulatum. |
| Grimmia maritima. | Trichostomum fasciculatum. |
| Hookeria lucens. | lanuginosum. |

ART. VII.—*Notice of 'A Flora of Shropshire.'* By W. A. LEIGHTON, B.A., F.B.S.E. London: Van Voorst. 1841.

(Concluded from page 16).

WE are sorry to find that in speaking of the published illustrations of the Botany of Shropshire, in the former part of this Notice, we so worded our remarks as to make it appear that the 'Botanist's Guide' by Turner and Dillwyn was the only work bearing that title in which such illustrations had appeared, thus excluding the 'New Botanist's Guide' by Mr. Watson. In Turner and Dillwyn's Guide are recorded the stations of 91 species of flowering plants; in Mr. Watson's New Botanist's Guide the number of species is raised to 157, the localities also being much more numerous, and chiefly derived from the previously unpublished notes of botanists of high repute.

Galium cruciatum, With., (*Valantia Cruciata*, Linn.) In 'Mag. Nat. Hist.' viii. 280, Mr. Leighton mentions two small, yellow, glandular bodies, situated on the back of the leaves of *Galium cruciatum*, immediately below their apex; and asks if these bodies are peculiar to the present species, and if any correspondent "can explain their probable use in the economy of the plant." We are not aware of any reply to these enquiries having appeared: the glands are obvious even in dried specimens of *Galium cruciatum*, but we have not observed them in any other species.

Anchusa officinalis, Linn.; "Oakley Park meadows, near Ludlow. Mr. H. Spare." We do not remember having before seen any other habitat for this species, than the Links at Hartley Pans, Northumberland, where it was discovered by the Rev. Thomas Butt: see his letter in 'Memoirs of Sir J. E. Smith,' i. 439.

The three reputed species of *Primula*, namely, *vulgaris*, *elatior* and *veris*, of 'English Flora,' i. 271, and other works, are, in the Shropshire Flora, restored to the rank assigned them by Linnæus, as varieties of his *Primula veris*; α , *officinalis*, being described as the cowslip, β , *elatior*, as the oxlip, and γ , *acaulis*, the primrose; β and γ being connected by a subvariety of *acaulis*, the *P. vulgaris* β of 'Eng. Fl.' l. c. At p. 9 of the 'Phytologist' will be found the description of a new subvariety, forming another link in the chain of evidence on this question.

Of *Hedera Helix*, Linn., Mr. Leighton observes, "the greatest elevation at which I recollect to have seen this plant growing in Shropshire, was near the summit of the Caradoc Hill, where it most

magnificently overspread the perpendicular and exposed face of one of the rocks."

Gentiana Amarella, Linn. "A variety with perfectly double flowers has been observed by the Rev. T. Salwey! at Trefonen, Oswestry."

Cuscuta Epilinum, Weihe, appears to be the only species of this genus occurring in Shropshire. It was "discovered by J. E. Bowman, Esq. ! July 29th, 1836, on flax, in a field near Croesmere, Ellesmere." See 'Mag. Nat. Hist.' N. S. ii. 343.

Shropshire can boast of possessing all the British *Droseras*. Under *Dros. rotundifolia* is recorded a variety, β , *ramosa*, which "occurs, not unfrequently, at Bomere Pool, of stouter and taller habit, with more numerous leaves, and the raceme forked or branched. On some specimens a simple raceme occurs, as well as the forked one."

Scheuchzeria palustris, Linn. Two Shropshire localities are given for this very rare plant, Bomere Pool and Shomere Moss, both near Shrewsbury. In 'Eng. Fl.' ii. 199, Lakeby Carr, near Boroughbridge, Yorkshire, is stated to be the only British station: in addition to this two others are given in Hook. 'Brit. Flora,' 174; so that we have now five recorded stations for a plant which, previously to 1807, was not known as a native of Britain.

Chrysosplenium alternifolium, Linn. "In all the Shropshire specimens which I have examined, of both species of *Chrysosplenium*, the calyx has been uniformly found to be 4-cleft, and the stamens 8; 4 of them alternating with, and 4 opposite to the sepals." This precisely accords with the result of our own observations on these plants.

Dianthus plumarius, Linn.; distinguished from *Dia. Caryophyllus* by the glaucous leaves being "finely serrulate at the margins" throughout their whole length, and not at the base only, as in the latter species; the flowers also have the outer edge of the petals deeply laciniated, while those of *Caryophyllus* are only sharply toothed. Mr. Leighton observes that "the only true stations known for *Dia. Caryophyllus* are the Kentish castles;" the old authors record a number of localities for it, but the plant growing in most of them is probably *plumarius*, as it certainly is at Ludlow in Shropshire and East Ham in Essex, while the plant of Rochester Castle in Kent is as certainly *Caryophyllus*.

Spergula vulgaris, Bonningh. Distinguished from *Sperg. arvensis*, with which it grows, by the seeds being "sharply keeled, and covered with white papillæ."

Localities are recorded for the rare *Anemone apennina* and *ranunculoides*: and the local *Ranunculus parviflorus* is said to be "not

uncommon ;" as indeed would appear from the long list of localities following the description.

Galeopsis versicolor, Curt. Mr. Leighton remarks, "I sowed seeds of this plant in my garden in 1834, where it has now completely naturalized itself; but I cannot perceive, on a comparison with the dried specimens from which the seeds were taken, any change in its characters, or any tendency to run into *Gal. Tetrahit* (of which it has been considered a variety), of which species I have never observed a single specimen in my garden." This was written in 1838.

Lathræa squamaria, Linn. The economy of this singular parasite, and its mode of attachment to the roots of the trees on which it grows, have been most successfully investigated by Mr. Bowman, who communicated the results of his researches to the Linnean Society, in a valuable paper read Nov. 3rd, 1839. This paper, with two exquisite plates of details, was published in the '*Linn. Transactions*,' xvi. 399; and an abstract appeared in the '*Mag. Nat. Hist.*' v. 45, illustrated by three excellent wood-cuts, copied from Mr. Bowman's original drawings. The 1st exhibits a perpendicular section (highly magnified) of one of the minute tubers situated at and near the extremities of the forked fibres of the root, showing the insertion of the tap-shaped base of the tuber into the alburnum of the root of the tree; the 2nd is a view of the longitudinal section of a leaf, through one of the parallel, perpendicular cavities or chambers excavated in the interior, each of these cells communicating with the external atmosphere by means of a very narrow opening "between the incurved lower edge of the leaf and the underside of the leaf-stalk;" the 3rd cut exhibits a magnified view of a transverse section of one of the subterranean leaves, wherein are shown all the cavities or cells divided in the middle, and lined with the minute, stalked papillæ or glands, which perform the various functions of the absorbing and perspiring cuticular pores of most other plants, these pores being absent from the external cuticle of the subterranean parts of *Lathræa*.

One of the stations for *Lathræa* is given on the authority of Mr. Dovaston; who says it is "naturalized to excess on hazel-roots at the Nursery, Westfelton." It will not perhaps be thought out of place here, if we introduce a quotation in reference to this *naturalization*, from a delightful article ycleped "Chit-chat," by Mr. Dovaston, in '*Mag. Nat. Hist.*' v. 503.

"*Von Osdat*. So you have at last succeeded in getting the toothwort (*Lathræa squamaria*) to grow on the roots of the hazel?

"*Dovaston*. Not until I had utterly despaired. It was four years, and some five,

before it came up visibly. I gathered the seeds in Erddig woods, where, you may remember, we saw it in profuse luxuriance. It will, however, turn pink or purple when very much exposed to the light, notwithstanding the remark of our learned friend, in his scientific and elaborate essay; for having cut away some of the hazel branches, to bring it more in view of the walk, the sunbeams in a few days turned it so very pinky and purple, that some ladies were very much struck with the beauty and delicacy of its colours, though the plant itself is rather of a repulsive and cadaverous aspect."

Of *Bidens tripartita*, Linn., "specimens not unfrequently occur, in which the leaves are all undivided; but attention to their being petiolate, and to the outer involucral bractees being unequal, serrated, and many times longer than the flowers, will at once obviate any doubt which may by possibility arise, as to which species the plant ought to be referred."

The list of Salopian Orchideæ comprises 21 species; among which we are glad to recognise the names of 17 of our oldest friends, as well as of 4 rarer species with which our acquaintance commenced at a later period. The former include *Orchis ustulata*, rare; *Habenaria viridis*, *chlorantha* and *bifolia*, neither of them unfrequent; *Ophrys apifera*, not unfrequent, and *muscifera*, very rare; *Neottia spiralis*, not common; *Listera ovata*, frequent; *Neottidium Nidus-avis*, not common; *Epipactis latifolia*, not unfrequent, and *palustris*, not common. The four rarer species are *Gymnadenia albida*, *Ophrys aranifera*, *Listera cordata*, all very rare in Shropshire; and *Cephalanthera ensifolia*, rare.

Gymnadenia albida, Scop. *Orchis albida*, Sm., 'Eng. Fl.' iv. 18. *Habenaria albida*, Br., Hook. 'Brit. Fl.' 376.

"The structure of this plant is certainly that of *Gymnadenia* not *Habenaria*. I am far from being certain that this genus and *Aceras* ought to be retained separate from *Orchis*. *Gymn. conopsea* comes so very near to *Orc. pyramidalis* in habit and appearance, as often to be hardly distinguishable without examination, and the structure of the anther is scarcely sufficiently different to constitute a genus."—*Babington*.

Neottidium Nidus-avis, Schltd. *Listera Nidus-avis*, Hook. 'Fl. Scot.' 253; 'Eng. Fl.' iv. 39; 'Br. Fl.' 379. The non-parasitical nature of this plant, and its mode of propagation, have been determined by the Hon. and Rev. W. H. Herbert; the results of whose researches we here lay before our readers.

"The Hon. and Rev. W. H. Herbert has investigated the economy of this plant, which has been considered as parasitical on the roots of trees. He found several dead flower-stalks which had grown out of bundles of fleshy fibres, diverging every way, but the fibres were falling apart, and the plant appeared to have died as an annual after flowering. On stirring the ground further, at a short distance, he discovered a live bundle of similar fibres, with a very strong white shoot or eye, like the dormant shoot of a perennial herbaceous plant, which was evidently to produce a flowering-stem in the next summer. Pursuing his researches he soon discovered similar bundles of dif-

ferent sizes, which were clearly immature, and not ready to sprout in the following spring. On examination of the smallest, he found that it grew from the end of a half-dead fibre; and recurring to the dead plant which he had first taken up, he perceived that its several fibres, or at least many of them, though dead at the base, *were alive at the other end*, and beginning to bristle or protrude young fibres near the extremity. By further research, he clearly ascertained that the plant *dies after flowering*, but is capable of *reproducing a new plant* from the point of each of its fibres after they have fallen apart, the extreme point becoming the eye or shoot, which increases in size till its maturity, and the lateral bristles becoming the fibres by which the plant is to be nourished and afterwards propagated. The young roots continue thus to increase in bulk under ground till they come to the flowering age, when they push up vigorously, die and spawn again in the same extraordinary manner."—p. 434.

We regret that we have room for only one more extract, which is a graphic description from the pen of J. F. M. Dovaston, Esq., of a remarkable monœcious variety of the common yew, with pendulous branches, (*Taxus baccata*, var. *β. Dovastoniana*, Leighton), growing in that gentleman's grounds at Westfelton, near Shrewsbury, and figured in Loudon's 'Arboretum Britannicum,' iv. 2083, fig. 1990.

"It is about sixty years since my father John Dovaston, a man without education, but of unwearied industry and acute ingenuity, had with his own hands sunk and constructed a pump; and the soil being light, it continually fell in; he secured it with wooden bars, but foreseeing their speedy decay, he planted near to it, a Yewtree, which he bought off a poor cobbler for sixpence, who had plucked it up from a hedge-bank near Sutton; rightly judging that the fibrous and matting tendency of the yew-roots would hold up the soil. They did so; and independent of its utility, the yew (as you have to your great admiration witnessed) grew into a tree of the most striking and distinguished beauty; spreading horizontally all around to a diameter of 63 feet, with a single spiral leader to a great height; each branch in every direction dangling in tressy verdure down to the very ground, pendulous and playful as the most graceful birch or willow, and visibly obedient to the feeblest breath of summer air. Its foliage, like that of the asparagus, is admirably adapted for retaining the dew-drops; and at sunrise it would seem that Titania and a bevy of her fairies had been revelling the night around it, and left their lamps in capricious frolick, so glitteringly coruscant is every branch with its millions of every-coloured scintillations, as it were all a-blaze. To descend, however, to prose:—this lovely tree has food for the mind of the philosopher, as well as for the eye of the poet; for, strange to tell, and what few unseeing believed, though a male, and smoking like furnace, or a very volcano, with farina to the blasts of February, it has one entire branch self-productive, and exuberantly profuse in Female berries, full, red, rich, and luscious; from which I have raised 17 plants, every one of which already markedly partakes largely of the parents' *pensility*. Of these seedlings several have been presented to the following friends. * * The remaining trees are still in my possession, and are intended to be distributed to Societies or persons who will undertake to plant them in situations where they are likely to be preserved. Berries will also, at the proper season, be given with pleasure to such persons who may be curious in these matters."—p. 497.

The plates, 19 in number, are a somewhat novel feature in a local

Flora; of their utility, however, there can be but one opinion. With the exception of Nos. 5 and 11 they are filled with magnified figures and sections of the fruit and its appendages of such closely-allied species as are best distinguished by a reference to those parts; including 9 species of *Potamogeton*, 9 of *Rumex*, 27 of the 34 species of *Umbelliferae* found in Shropshire, all the British *Carices*, and 18 species belonging to other genera of *Cyperaceae*. In plate 5 are shown the variations in the form of the leaves and mode of inflorescence of *Chenopodium polyspermum*, Linn., the erect, acute-leaved form of which, at the suggestion of his friend Mr. Davall, Sir J. E. Smith described and figured as a distinct species under the name of *Chen. acutifolium*, in 'Eng. Bot.' xxi. t. 1481: and plate 11 is entirely filled with details explanatory of the curious economy of *Colchicum autumnale*.

In concluding this brief and imperfect notice of the 'Flora of Shropshire,' we feel that we cannot too strongly recommend it to the notice of our readers. For although, as a local Flora, it professes to treat only of the plants of a single county, that county produces more than half the number of species of flowering plants indigenous to the kingdom. The descriptions are unusually full and carefully drawn up: and when we add that some of the less understood species have been illustrated by the critical remarks and observations of some of our most eminent botanists, as for instance, many of the *Hieracia* and *Orchideae* by Mr. Babington, the oaks by Professors Don and Graham, and the *Cerasi* by Dr. Bromfield and Messrs. Borrer, Dovaston and Forster, and that throughout the work there is constant reference to the state of the science on the continent and to the works of modern continental botanists, we think we have good grounds for saying that the 'Flora of Shropshire' should be in the hands of every one who feels interested in the botanical productions of the British isles.

ART. VIII.—*Analytical Notice of No. 54 of the 'Supplement to the English Botany of Sir J. E. Smith and Mr. Sowerby.'* London: Longman & Co., Sherwood & Co., and the Messrs. Sowerby.

THE recently published number of this valuable and important work contains interesting descriptions of *Myriophyllum alterniflorum*, DC. *Bryum Ludwigii*, Schwægr. and *Bryum annotinum*, Hedw.; and descriptions and figures of *Herniaria ciliata*, Bab.; *Potamogeton prælongus*, Wulf.; *Orobanche barbata*, Poir.; *Atriplex deltoidea*, Bab.; and *Lecidea Salweii*, Borr.

We insert the following concise analysis of their characters and distinguishing marks.

Myriophyllum alterniflorum, DC. Sterile flowers alternate, about 6, in a leafless spike; spike nodding when in bud, afterwards erect; fertile flowers in axillary whorls of about 3 flowers, at the base of the spike: *tab.* 2854.

Stagnant pools and ditches.

St. Leonard's Forest, Sussex. Whixall Moss; near Colemere; Berrington Pool; Twyford Vownog, near Westfelton: all in Shropshire. Small lake near Snowdon. Braid Hills, near Edinburgh. Isle of Wight. Guernsey.

Smaller and more elegant than *M. spicatum*.

Bryum Ludwigii, Schwægr. Stems ascending; leaves ovate, concave, obtuse, flaccid, entire, their nerve ceasing below the apex; capsule pendulous, sub-pyriform; lid conical, obtuse: *tab.* 2855.

Clova Mountains.

Remarkable for its lax, obtuse, pellucid foliage, which is glossy and scarcely twisted when dry.

Bryum annotinum, Hedw. Stem very short; leaves crowded, erect, lanceolate, nerved, subserrulate at the apex; capsule oblong-pyriform, pendulous; lid convex, apiculate: *tab.* 2856.

Moist sandy places, usually barren; frequent.

Winwick Stone Delph, near Warrington.

Closely resembling *B. nutans*, but with smaller, more crowded and less deeply coloured foliage; the barren shoots bearing club-shaped fingered gemmæ in the axils of the leaves. Differing also from *B. carneum* in the form of the capsule and greater length of the fruit-stalk.

Herniaria ciliata, Bab. Stems herbaceous, prostrate, clothed with very minute decurved hairs; leaves orbicular-ovate, ciliated; clusters of sessile flowers axillary upon the lateral branches and distinct: *tab.* 2857.

Gravelly soil; tops of walls and hedge-banks.

Lizard Point, Cornwall. Near Port de Fer, Guernsey.

Usually confounded with *H. glabra*, *t.* 206, but very distinct.

Potamogeton praelongus, Wulf. Leaves all submersed, elongate-oblong, amplexicaul, obtuse and hooded at the end, entire; stipules without wings; nut obliquely ovate, keeled on the back when dry; spike cylindrical, many-flowered; peduncle very long, cylindrical: *tab.* 2858.

Ditch adjoining the river Thames, at Caversham Bridge near Reading. River Waveney, between Scole and Beccles. Scotland, frequent. River Blackwater, Co. Kerry, Ireland.

Leaves membranous, with about 5 strong nerves extending quite from the base to the apex, with several (about 2) weaker intermediate nerves and numerous transverse

reticulations, pale green. *Spike* about 2 inches long. *Peduncle* very long, often 1 foot or more, curved, solitary. *Nut* compressed, with 1 large central and 2 smaller keels upon the back when dry, but rounded when wet.

Orobanche barbata, Poir. Sepals with 1 prominent nerve and several faint ones, ovate, with a long subulate point, or bifid, as long as the bent tube of the corolla; lips of corolla obscurely denticulated and wavy, upper 2-lobed, lower with 3 nearly equal lobes, central one longest; stamens inserted near the bottom of the tube, glabrous except at the base within; style glabrous, minutely downy above: *tab.* 2859.

Parasitical upon *Hedera Helix*.

St. Ives, Cornwall. Berry Head, Torquay and Combe Martin, Devonshire. On Worle Hill by Weston-super-Mare, Somersetshire. Barmouth and Oystermouth Castle, near Swansea, in Wales. Lexlip Castle and Mucruss Abbey, Ireland. Isle of Wight. Guernsey.

Usually confounded with *O. minor*, *t.* 422, which, independently of all structural differences, is as constantly parasitical upon *Trifolium pratense* as this is upon *Hedera Helix*. Stem 6—18 inches high, glandular-pubescent, purple. Corolla cream-coloured with prominent purple nerves, ultimately reddish-brown, externally glandular; margins of upper lip deflexed, of the lower one incurved. *Stigma* slightly 2-lobed, its disk yellow.

Atriplex deltoidea, Bab. Stem erect, herbaceous, with ascending branches; leaves all hastato-triangular, unequally toothed, opposite; enlarged calyces ovate-triangular, toothed, tuberculated on the back, longer than the fruit, arranged in a compound, many-flowered panicle; seeds smooth and shining: *tab.* 2860.

Waste places; not uncommon.

Primrose Hill, near London. Leicestershire. Kent. Shropshire. Guernsey. Sark.

Distinguished from *A. patula* by not having its upper leaves entire, its enlarged calyx not triangularly rhomboid and entire, its spikes not interrupted and simple, nor its branches elongated, its fruit smooth and shining, not opaque and rough.

Lecidea Salweii, Borr. Thallus of small, white, depressed, bluntly-lobed, tumid, tartareous scales; patellulæ superficial, slightly raised, lurid-brown, margin paler, narrow, flexuous; substratum thick, pale: *tab.* 2861.

On the ground, in rocky situations.

Craig Breiddin, Montgomeryshire; near Drws y Nant-Isaf by the road from Bala to Dolgelly, and above Gelli-rhudd near Barmouth; above Twll-dû: all in North Wales. Near Sennen, Cornwall. In the Valley of Rocks at Linton, North Devon. Priest-Leap Mountain near Dunkerron, Ireland.

Patches of irregular outline and considerable extent, composed of scales rarely a quarter of an inch over, closely attached to the substance on which it grows. *Patellulæ* about the size of poppy-seed, produced upon the scales, not in the interstices; slightly elevated, often clustered.

Nearly allied to *Lichen quadricolor*, *t.* 1185, and *Lichen glebulosus*, *t.* 1955, particularly the latter. Referable to the genus *Biatora* of Fries. Named after its discoverer, that accurate lichenologist, The Rev. Thomas Salwey, of Oswestry, Shropshire.

that M. Ch. Martius, who twice accompanied the French expedition to Spitzbergen, is of opinion that the colouring matter of red snow, *Protococcus nivalis*, and of green snow, *Prot. viridis*, "are one and the same plant, only in different stages of development." Prof. Meyen, however, considers it to be still a question whether the colours of the snow are really produced by different states of the same species, but he has no doubt that the so-called Protococci belong, not to the vegetable but to the animal kingdom, being true Infusoria; that *Protococcus viridis* is identical with Ehrenberg's *Euglena viridis* and *Prot. nivalis* with his *Eug. sanguinea*, (the *Enchelis sanguinea* and *Pulvisculus* of authors); that these Enchelides "exhibit at times a perfectly motionless state, in which they appear spherical," and that in this state they have been described as Protococci; that "it is these spherical, reposing animalcules which often appear in almost incredible numbers, and, surrounded with a kind of slime, form more or less thick skins, which frequently cover the bottoms of shallow standing waters;" and it is in consequence of observing that these animalcules, after long remaining in this passive and inert state, occasionally resume their activity, that so many philosophers have spoken of a metamorphosis of Infusoria into plants, and vice versâ.—*Ed.*

ART. X.—*Proceedings of Societies.*

LINNEAN SOCIETY.

AFTER the recess we intend to give full reports of the botanical papers read at this Society.

BOTANICAL SOCIETY OF EDINBURGH:

The future meetings of this Society will be regularly reported: the omission in the present instance was not accidental, but unavoidable.

BOTANICAL SOCIETY OF LONDON.

June 4.—John Reynolds, Esq., Treasurer, in the Chair. Dr. Killikelly (of Indiana) presented a specimen of *Tillandsia Uaneoides* from the banks of the Mississippi.

Dr. John Lhotaky read a paper "On the Periodical Decortication of the genus *Eucalyptus* in Australia." After describing the appearance of the bark hanging in strips from the trunks and branches of the Eucalypti, Dr. Lhotaky observed that in addition to this singular effect, the varying colour of the denuded trunks and branches, from pure white through all shades to deep red, presents an equally original and characteristic aspect. Little is yet known as to the period of decortication; and the questions to be determined by future observers are, 1st, Whether the decortication of the different species of Eucalypti takes place at any certain season or is dependent on other circumstances; and 2dly, Whether all the species decorticate at the same period, or the different species at different times. The cause of a phenomenon apparent in so great a number of a genus scattered most widely over the Australian continent, is matter of importance for physical Geography, and for Botany especially. And Dr. Lhotaky thinks a clew towards its explanation may be obtained through that botanical axiom, that the concentric layers of wood and bark are the reverse of each other; the former increasing externally, the other internally. As exogenous plants (like the Eucalypti) increase by annual additions of new matter on their outsides, it is plausible to say, that as the growth of the Eucalypti, in almost all the species, is very rapid, the alburnum of these trees extends so rapidly that the liber first becomes considerably distended, then cracks, and finally separates from the trunk. The New Hollanders have largely taken advantage of this phenomenon. The huts or sheds temporarily occupied by them are made of the sheets of the bark of the Eucalypti. It is on such sheets that they repose, and protect themselves from the humidity of the soil. From such sheets also they make their most rude canoes, (with which, however, they only navigate the lakes); they bind them in an adequate manner, and fill up the crevices with soil and melted gum. The New Hollander possesses neither flint nor steel; and as he finds it difficult to produce fire, he carries with him on his aquatic excursions, a piece of a large ignited branch of an Eucalyptus, which, from its resinous nature, burns like a torch. In conclusion, Dr. L. observed,—“Taking all this, and what I have said in previous papers, together, the New Hollander may, with some degree of propriety, be called the ‘Eucalyptus-man.’”—*G. E. D.*

THE PHYTOLOGIST.

No. III.

AUGUST, MDCCCXLI.

PRICE 6D.

ART. XI.—*A History of the British Lycopodia, and allied Genera.*
By EDWARD NEWMAN. (Continued from page 20).



THE SAVIN-LEAVED CLUB-MOSS.

LYCOPodium ALPINUM of Authors.

LOCALITIES.

- England. Northumberland, on the Cheviots; Cumberland, Place Fell and Swarth Fell; Durham, Cronkley Fell and near Egleston; Lancashire, near the Holme about five miles from Burnley, and Coniston Fells; Cheshire, moors above Micklehurst; Derbyshire, mountains near the Derwent. *Turner and Dillwyn.*
- Wales. Denbighshire, moors, very common; *Turner and Dillwyn.* Caernarvonshire, very common. Merionethshire, on Cader Idris. Plinlymmon, *Mr. Lees.*
- Scotland. Very common on elevated districts.
- Ireland. Counties Donegal, Antrim, Down, Kerry.

THE Savin-leaved Club-moss, as its name of *alpinum* implies, is completely an alpine plant: it occurs in great abundance on the elevated tracts in Scotland, where I have myself seen it in localities too numerous to detail; and have received a long list of habitats from Drs. Greville and Balfour, Mr. Graham, &c. In several of the adjacent islands it is also found; and Mr. Edmonston has sent a specimen from Unst, the most northerly of the Shetlands; this specimen is ticketed "*Lycopodium clavatum*" (which species is not in the collection), and unfortunately is so recorded in a late number of the 'Annals and Magazine of Natural History.'* Mr. Edmonston, with a laudable desire to make his list as correct as possible, sent the plants themselves for comparison; and it has happened that I have had frequent opportunities of examining the collection. In North Wales it seems to be abundant on the high ground in Caernarvonshire; particularly on the ascents of Snowdon, Glyder, David, Llewellyn, &c., but it seldom occurs immediately on their summits. Mr. Janson, Mr. Kippist, and others have given me similar habitats: in Denbighshire, and on Cader Idris in Merionethshire, it occurs more sparingly. In England, Northumberland, Cumberland, Westmoreland, Durham, Yorkshire, and Lancashire produce the species in some abundance; Miss Beaver informs me it is "plentiful on the Fells near Coniston." In Turner and Dillwyn's 'Botanist's Guide,' i. 193, a single Cheshire habitat,—"Moors above Micklehurst,"—is recorded on the authority of Mr. Bradley; and in the same work (i. 192), on the authority of Mr. J. Martin, it is said to have been found on "Mountains near the Derwent" in Derbyshire. In Ireland I found it sparingly in the counties Donegal and Kerry; and Mr. Moore has seen it on Knocklayd, Co. Antrim, near Belfast, and on the Mourne Mountains. Mr. Ball of Dublin writes me that he found it on Mangerton; and having spelled the name for the benefit of that nuisance to tourists, the self-styled Sir Peter Courtney, that worthy engraved it on a flat stone with the point of his knife, and doubtless displays his botanical lore for the edification of future tourists, and to the profound admiration and humiliation of his brother guides.

Our early botanists have so mixed up this with another continental species, *Lycopodium complanatum*, that it is impossible to decide to which their observations are to be referred. I have little doubt that Gerarde describes *alpinum*, although his figure evidently represents *complanatum*, and Tragus appears to be unacquainted with it altoget-

* In the same list *Lomaria spicant* appears as "*Polypodium vulgare*."

ther, his figure being likewise that of *complanatum*. Dillenius, as remarked by Sir J. E. Smith, was well acquainted with both species, but unaccountably misquotes Tragus, Gerarde, Dalechamp, and the two Bauhins, under his description of *L. alpinum*: owing to this confusion it is unsafe to quote any of the virtues, real or supposed, that have been assigned by these patriarchs of the science to either species.

We are informed by Sir W. J. Hooker that *Lyc. alpinum* is used by the inhabitants of Iceland as a dye for their woollen cloths. "A vast heap of *Lycopodium alpinum* lying before the priest's house drew my attention, and on enquiry I found that it was used for the purpose of giving their wadmal* a yellow dye, which is done by merely boiling the cloth in water, with a quantity of the *Lycopodium* and some leaves of *Vaccinium uliginosum*. The colour imparted by this process, to judge from some cloth shown me, was a pale and pleasant, though not a brilliant yellow." †

The savin-leaved club-moss is a pretty plant, in its foliage much resembling the savin from which it has derived its English name: it retains throughout the winter a much brighter green than either of its congeners: in summer the young shoots have a blue tint. According to Sir W. J. Hooker it is the badge of the clan Macrae.

The roots are tough, strong, wiry, and generally tortuous and branched; they occur at intervals varying from two to four inches, and are somewhat darker in colour than those of *Lyc. clavatum*; they fix the plant firmly to the soil.

The stem is procumbent, extending to a great length, and throwing up at short intervals clusters of branches, which, being twice or thrice dichotomously divided, give the plant a densely tufted appearance: the tips of the branches or divisions in each bunch or tuft are of nearly equal length, the extremities terminating on a level. When the plant is about to produce seed, spikes are thrown out from the extremities of these branches without any intermediate foot-stalk: the spikes are rather more than half an inch in length, and somewhat exceed the unfruitful branches in thickness, and are of a paler, yellower green colour than the rest of the plant: they are almost invariably in double pairs, plainly exhibiting the repeatedly dichotomous division of the branches which they terminate.

The entire plant is covered with elongate, harsh, indistinctly keeled, obtusely pointed leaves; the edges of the leaves are without perceptible teeth or serratures, and the points have no acute or filamentous

* Wadmal is the name of the woollen cloth usually worn by the Icelanders.

† 'Journal of a Tour in Iceland, in the year 1809,' i. 214.

termination: the leaves or bracts in the spike are membranous, flat, scale-like, serrated at the sides, dilated at the base, and terminating in a prolonged point at the apex. After the escape of the seeds the spikes bend downwards, assuming a semicircular form, and the bracts become reflexed.

The thecæ are sessile, of a pale yellow colour, and in form much resembling a kidney bean.

(To be continued).

ART. XII. — *Short Account of an Excursion to Cobham, Kent.*

By AL. IRVINE, Esq.

Albury, June 21, 1841.

SIR,

If you think the following short account of a visit to Cobham, Kent, worth your notice, you are welcome to insert it in 'The Phytologist,' to which I wish much success.

Yours very truly,

AL. IRVINE.

To the Editor of 'The Phytologist.'

ON Whitmonday, May 31, 1841, my friend Mr. Wm. Pamplin, jun. and myself left London Bridge in one of the steamers about 8 o'clock A. M., and arrived at Gravesend by half-past 10. We then started for Cobham across the fields, a walk which may be accomplished with ease in little more than an hour. Among the corn we found *Papaver hybridum*, *Adonis autumnalis*, *Ajuga Chamæpitys*, *Bupleurum rotundifolium*, &c.

After passing through the village of Cobham towards the park, beyond the carpenter's shop and yard, in a corner partly in the wood and partly on the little waste ground between the cornfield and the wood skirting the park, we gathered a species of *Tragopogon*,* which Mr. Pamplin, who showed me the spot, told me, as far as I can recollect, is an undescribed or unrecognised species.

From the spot where the *Tragopogon* grows we walked along the verge of the park, having the park on our left hand and the corn-fields on our right, and in a few minutes arrived at most magnificent plants of *Astragalus glycyphyllos*, growing in great abundance; we also ob-

* See next page.

served a few plants of *Lathyrus Nissolia*. Hence cutting across, that is, avoiding the windings of the park, and going over a rising part of the ground, we reached the field where *Althæa hirsuta* is this year in great profusion. This field extends quite up to the park, and is perhaps about half an hour's easy walk from Cobham. *Salvia pratensis* is found in the same spot, all along the bank on the extremity of the field, and close to the park. The ground rises as one walks towards Rochester, and that city is seen after passing along the head of this field and part of the next.

After collecting some specimens of *Althæa hirsuta* and *Salvia pratensis*, the latter plant being at that time most luxuriant and beautiful, we crossed the fields by a path which leads to the road between Cuxton and Halling, on the Medway. On the steep chalky downs or pastures about midway between these two villages, we found numerous and fine plants of columbine (*Aquilegia vulgaris*), the flowers of which were of a deep and exquisite blue; also specimens of *Orchis fusca* and various other Orchidaceous plants. My friend Mr. Pamplin had the pleasure of finding a curious variety of *Ophrys muscifera*. Between an ancient religious house and Cuxton, going towards the latter place on the right hand, and nearer to the said house than to the village of Cuxton, we gathered *Anchusa sempervirens* under the hedge; a plant very rarely found, but which has been occasionally noticed as belonging to this spot, since the times of the earliest botanists. Near the road between Gad's Hill and Gravesend, grow *Lathyrus latifolius* or *sylvestris* and *Fumaria parviflora*.

These places, together with the marshes about the Medway, will well repay the labour of investigation; especially to such as have a taste for the cultivation of local Botany.

[In a subsequent communication dated July 8th, Mr. Irvine kindly favours us with some remarks on the *Tragopogon* mentioned at p. 36, which Mr. Pamplin has observed in the same spot at Cobham for several years. Mr. Irvine also added from Koch's 'Flora Germanica,' a description of *Tragopogon orientalis*, *Linn.*, with which species the Cobham plant agrees in the peduncles being cylindrical, and only slightly swollen immediately under the flowers, in the number of leaflets (8) of the involucre, and in the florets being much longer than the involucre. These, however, are almost the only particulars in which the Cobham plant agrees with *Trag. orientalis*; and having carefully examined fine and perfect specimens with which Mr. Pamplin has obligingly furnished us, we find them to agree so exactly with the description of *Trag. pratensis* in 'English Flora,' iii. 388, even to the curling of the tips of the long and gradually tapering leaves, that we have little doubt of the Cobham plant being that species in a state of great luxuriance, and with the florets longer than usual, which Sir J. E. Smith says is sometimes the case. Our opinion is strengthened by finding that in the Cob-

ham plant the ligules are streaked with brown on the under side, and that the anthers are brown—characters which Linnaeus, in contrasting *Trag. orientalis* and *pratensis* in his 'Species Plantarum,' expressly states that the former species does not possess; * moreover, the marginal achenia in our plant are muricated with tubercles, *not* with scales, as those of *Trag. borientalis* are stated to be by Koch.†

We may take this opportunity of mentioning our belief that the common plant of our meadows and pastures is *Tragopogon minor* of *Fries*, Nov. 2nd ed. 291, in which the involucre is about twice as long as the florets, and the peduncles much swollen immediately beneath the flowers; at least this is the plant we have generally met with. Ray's remark that in *Tragopogon* the rays of the calyx are longer than the flowers,‡ would seem to favour this opinion: Relhan also observes that the corolla is sometimes shorter than the calyx.§ We should be glad to receive communications on this and other doubtful points connected with the history of British plants.—*Ed.*]

ART. XIII.—*Notice of Plants gathered in the vicinity of Aberystwith, Cardiganshire.* By EDWIN LEES, Esq., F.L.S., &c.

THE vicinity of Aberystwith is composed entirely of the clay slate formation, and consequently there is little variety of soil; but it may perhaps be more interesting to the collecting botanist, to class the plants met with according to the habitats affected by them, rather than to give them in one catalogue. They may be more easily sought too by this plan, and a long detail of the exact locality is hereby avoided.

LITTORAL PLANTS.

<i>Glaucium luteum</i>	<i>Erigeron</i> acre, on Borth sands
<i>Cochlearia officinalis</i>	<i>Convolvulus Soldanella</i>
<i>Cakile maritima</i>	<i>Plantago maritima</i> , a curious proliferous variety
<i>Silene maritima</i> , profusely	<i>Erythræa littoralis</i> and <i>pulchella</i>
<i>Sagina maritima</i>	<i>Salsola Kali</i>
<i>Arenaria peploides</i> and <i>marina</i>	<i>Centunculus minimus</i> , abundant on the sandy heath between Maen Ynws and Aberdovey Ferry, at Borth, six miles North of Aberystwith
<i>Erodium maritimum</i> , below the castle rock	<i>Polygonum maritimum</i>
<i>Rosa rubella</i> , very sparingly	<i>Euphorbia paralias</i>
<i>spinosissima</i> , plentifully	
<i>Eryngium maritimum</i>	
<i>Aster Tripolium</i> , at Borth, north of Aberystwith	
<i>Chrysanthemum maritimum</i>	

* *Trag. orientalis*.....differt a *T. pratensi* flore majore, calyce ubi reflectitur quasi fracto, radio corollæ subtus luteo, nec fusco striato, antheris luteis, nec fuscis. Sp. Pl. 1109.

† Floribus duplo majoribus, et acheniis squamoso muricatis ab antecedente (*T. pratensi*) satis differt. Koch, 'Fl. German.' 423.

‡ *Tragopogon insigni* nota a reliquis papposis lactescentibus differt, quod calycis floris radii ipsius folia seu petala longitudine excedant. 'Synopsis,' 171.

§ Corolla calyce quandoque brevior. 'Fl. Cantab.' 315.

BOG PLANTS.

Most of these grow on Cars Gochno, an extensive morass six miles north of Aberystwith, at the mouth of the little river Leary, and well deserving examination.

<i>Drosera longifolia</i>	<i>Anagallis tenella</i>
<i>Hypericum elodes</i>	<i>Pedicularis palustris</i>
<i>Comarum palustre</i>	<i>Scutellaria minor</i>
<i>Vaccinium Oxycoccus</i>	<i>Myrica Gale</i>
<i>Andromeda polifolia</i>	<i>Narthecium ossifragum</i>
<i>Campanula hederacea.</i> This little plant	<i>Rhynchospora alba</i>
beautifully adorns the bogs on Plinlimmon, by the course of the infant Severn.	<i>Eriophorum vaginatum</i>

ROCK PLANTS.

<i>Corydalis claviculata</i>	deed was gathered by Mr. Forster at this very spot; and perhaps <i>S. glaucum</i> itself may not be very different.
<i>Arabis hirsuta</i>	<i>Crithmum maritimum</i> , very sparingly
<i>Viola lutea</i> , on the hills about the Devil's Bridge	<i>Ligustrum vulgare</i> , on the castle rock; and I have generally found this plant on the maritime rocks of South Wales.
<i>Cotyledon Umbilicus</i>	<i>Linaria repens</i> , on the slate-rocks of Constitution-hill, very luxuriant and beautiful.
<i>Sedum anglicum</i> , very abundant on the castle rock	<i>Origanum vulgare</i>
<i>Sedum Forsterianum.</i> The plant which I gathered on a rock at the foot of the Rheidol Fall in 1837, and which flowered in a pot in my garden in June, 1839, differs considerably from the figure in 'Eng Bot.' 1802, and comes nearer <i>S. glaucum</i> , 2477, the petals being narrow and almost linear, the calyx deeply cut, its segments sharp-pointed, and all the leaves with acute points. The barren branches are elongated, with the leaves curved or patent. Nevertheless, I conclude it can only be a variety of <i>S. Forsterianum</i> , which in-	<i>Cistopteris fragilis</i> , on the Devil's Bridge and neighbouring walls, plentiful.
	<i>Aspidium Oreopteris</i> , on the descent to Pont Bren
	<i>Hymenophyllum Wilsoni</i> , rocks at Pont Bren
	<i>Lycopodium clavatum</i> , alpinum and Selago, all very abundant on Plinlimmon, twelve miles N.E. of Aberystwith.

MARSH PLANTS.

<i>Spergula nodosa</i>	<i>Utricularia minor</i>
<i>Oenanthe peucedanifolia</i>	<i>Callitriche autumnalis</i>
<i>crocata</i>	<i>Triglochin palustre</i>
<i>Lobelia Dortmanna</i> , Teivy Llyn, S.E. of Aberystwith	<i>maritimum</i>
<i>Samolus Valerandi</i>	<i>Juncus maritimus</i>

The above (*Lobelia* excepted) are found at Borth Marsh, six miles North of Aberystwith.

WOOD, MEADOW, AND ROAD-SIDE PLANTS.

<i>Hypericum dubium</i>	Cardigan, I observed a number of tall plants of this species, but it was very near a part recently enclosed, and therefore a half doubt arose whether they might not have been planted. But there was no garden or habitation near, and no soul about the desolate spot of whom to make the enquiry.
<i>Euonymus europæus</i>	
<i>Lathyrus sylvestris</i>	
<i>Rosa villosa</i>	
<i>micrantha</i>	
x <i>Rubus suberectus</i> , abundant in the woods about the Devil's Bridge; and puzzling forms of this or <i>R. affinis</i> , occur in bushes in fields near the sea at Sarn Cynvelen, 2 miles N. of Aberystwith.	<i>Sanguisorba officinalis</i> , very fine on the ascent of the mountain to Llyn Teivy, near Strata Florida Abbey.
<i>Spiræa salicifolia</i> . On a wild common about midway between Aberystwith and	<i>Antirrhinum Orontium</i>
<i>South Cottage, Malvern Wells,</i> <i>July 17, 1841.</i>	EDWIN LEES.

ART. XIV. — *Notes on Plants growing in the neighbourhood of Guildford, Surrey.* By J. S. MILL, Esq.

Impatiens fulva. At whatever period introduced, this plant is now so thoroughly naturalized, that it would be pedantry any longer to refuse it that place in the English Flora, which has been accorded on less strong grounds to many plants originally introduced from abroad. For many miles by the side of the Wey, both above and below Guildford, it is as abundant as the commonest river-side plants, the *Lythrum Salicaria* or *Epilobium hirsutum*; and my friend Mr. Henry Cole informs me that it is found in various places by the same river all the way to its junction with the Thames. It is equally abundant on the banks of the Tillingbourne, that beautiful tributary of the Wey; especially at Chilworth, where it grows in boundless profusion: and near Albury, where I saw it for the first time in 1822. The plant stated by Sir J. E. Smith to be growing near Guildford, under the name of *Impatiens Noli-me-tangere*, is doubtless no other than this plant. The *Noli-me-tangere*, which I have seen growing about Windermere, in the Pyrenees, and in Switzerland, is very distinct from this.

Geranium lucidum; in most of the lanes about Guildford.

Fumaria capreolata; near Losely, and by the roadside between Guildford and Merrow.

Fumaria parviflora; in corn-fields on the summit and southern declivity of the Hog's Back; and in lanes at its foot.

Valerianella dentata (or *Fedia dentata*); corn-fields on the chalk hills on both sides of Guildford, abundantly.

Isatis tinctoria; in great perfection in the chalk-pits close to the town, on the Shalford road; as noticed in 'The Phytologist,' p. 30.

Hippuris vulgaris; in one of the ponds in Clandon Park.

Bupleurum rotundifolium. This plant grew, last summer, in a corn-field on the brow of the hill by the path leading from Guildford to Martha's Chapel. The field having been sown this summer with a green crop, which was removed early, the plant cannot now be found.

Campanula hybrida; abundant in the lower part of the same field.

Corydalis claviculata. This plant formerly grew close to Martha's Chapel, but I have sought for it this year in vain.

Dipsacus pilosus; most abundant near Chilworth, especially in the hanging wood.

Androsæmum officinale; near Albury, but sparingly.

Saponaria officinalis; near Shere.

Stellaria glauca. This interesting and elegant plant grows in marshy meadows by the river Wey, near the foot of St. Catherine's Hill.

Menyanthes trifoliata; now (whatever may formerly have been the case) a rare plant in Surrey. It grows on Gomshall Common, in the vale of Albury; where I also once found a double variety of *Cardamine pratensis*.

Papaver hybridum; in corn-fields between Guildford and Martha's Chapel. *Papaver dubium* is as common in the neighbourhood as *P. Rhœas*.

Lepidium sativum; naturalized by the side of the Wey.

Nasturtium sylvestre and *Barbarea præcox*: not unfrequent by the side of the Wey.

Rhamnus catharticus and *Frangula*; the former not unfrequent on the downs, the latter abundant in a wood near Compton.

Orobanche major; at Martha's Chapel.

Listera Nidus-avis; in a heathy wood between Guildford and Martha's Chapel. With this exception I have not been able to find near Guildford any of the less common Orchideæ so numerous near Dorking.

Salvia verbenaca. St. Catherine's Hill; Merrow Church-yard; and various other places.

Cistopteris fragilis and *Asplenium Ruta-muraria*. These ferns grow in considerable abundance on a wall by the road-side at Albury, where I first found them in 1824, and again this summer.

Marchantia polymorpha; on the perpendicular face of the cutting on the road to Godalming, at the foot of St. Catherine's Hill. *Geranium lucidum* grows on an old wall on the opposite side of the road.

J. S. MILL.

ART. XV.—*Botanical Notes.* By GEORGE LUXFORD, A.L.S., F.B.S.E.

UNDER this title will occasionally be laid before the readers of 'The Phytologist,' any interesting particulars relating to British plants that may happen to fall under my observation, in the hope that such notices will, in doubtful cases, lead to further enquiry.

Silene inflata, Sm. A short time back while looking over the herbarium of Mr. Wm. Bennett, I found two specimens of a plant from the collection of one of his friends, ticketed "*Silene Otites*: Woolwich Marshes: June, 1836." These were specimens of a curious state of *Silene inflata*, somewhat similar to the female variety of that species stated by Linnæus to be frequent in the Upsal garden; but I have no recollection of having met with a record of the previous occurrence of anything similar to it in Britain. The stem and leaves of the Woolwich specimens are the same as those of the plant in its usual state; the panicle also is repeatedly dichotomous and spreading, but the flowers are crowded together into a compact head at the extremity of each of its branches. The flowers themselves have neither the inflated calyx nor the large white petals of the perfect plant, but in size and general appearance bear a strong resemblance to those of the fertile plant of *Silene Otites*. They consist of four or five membranaceous scales or bracteas, slightly streaked and reticulated with purple, and inclosing several follicular bodies, each of which terminates in a twisted, purple, style-like point. In one of the flowers which I examined there were ten of these bodies, the five central ones cohering and forming an ovarium with five styles, the outer five being free and detached. I could discover nothing resembling stamina.

I subjoin a description of the Upsal variety of *Silene inflata* (the *Cucubalus Behen* of Linnæus) from the 'Species Plantarum,' whereby the differences between that and our plant will at once be perceived. "A female variety is frequent in the Upsal garden. This is smaller than the perfect plant. The calyx is exactly ovate, not oblong-ovate, and more obscure: corolla smaller: stamina half the length of the corolla, terminating in a tubercle without anthers: styles 3—5, longer than the corolla, turned to one side: each plant is fertile." *

* *Cucubalus Behen*..... "Varietas Feminea in Horto upsaliense frequens. Hæc Hermaphrodito minor. Calyces exacte ovati, magis obscuri, nec oblongo-ovati. Corolla minor. Stamina corolla dimidio breviora terminata tuberculo absque antheris. Styli 3 s. 5, corolla longiores, declinati. Planta utraque fertilis."—'Sp. Pl.' 591.

The above description of the Woolwich plant is very imperfect; the specimens had apparently been dried by the application of heat and considerable pressure, so that immersion in boiling water did not restore them to a good state for examination. The present notice may however lead to the detection of this variety (or rather monstrosity) in other localities.

Monotropa Hypopitys. I have long wished that some able botanist would seriously set to work on this plant, in order to determine whether it be really a parasite or not. The question has been settled with regard to *Lathræa*; and there is no doubt that a series of observations conducted in the same candid spirit which characterises the investigations of Mr. Bowman, would in this case lead to equally satisfactory, though I suspect somewhat different results. From my earliest botanizing days I have felt much interested in the enquiry, and have neglected no opportunity of endeavouring to ascertain whether a connection does really exist between this plant and the roots of the trees among which it grows; but either from not being able to command the requisite time or necessary patience, my researches have hitherto led to nothing satisfactory. In the neighbourhood of Reigate the *Monotropa* grows under the beeches in the rather stiff clay capping the chalk hills. On taking up a tuft containing several individuals of *Monotropa* growing in a large lump of soil, I have generally found that however loose and friable the upper surface might be, the lower part was invariably hard and thoroughly permeated by the fibres of the beech-roots. It is almost impossible, in clearing away this part of the soil, to avoid breaking off the very brittle fibrous roots of the *Monotropa*; the fibres of the beech, being much tougher, may, with a little care, be extracted in considerable lengths. One would suppose, if the plant were really parasitical, that to these beech-fibres we should find attached at least some small portions of its roots; this I have not observed to be the case. Steeping the clay in water in order that it may be washed from the plants, appears rather to have the effect of rendering it harder: I once had a tuft in water for upwards of a week, but the steeping did no good.

I have generally found a number of young detached plants of *Monotropa* dispersed through the lump of earth: they vary in size from little, white, pea-like bodies to half an inch or upwards in height; and I should say are certainly not connected with the beech-roots. I am inclined to believe that a portion at least of the nourishment of this plant is derived from a layer of vegetable matter, consisting chiefly of the slowly decaying leaves of the beech, which are generally covered with a white byssoid fungus.

I shall be exceedingly glad to learn that some favourably situated botanist has been able to settle that long-debated point,—the parasitical or non-parasitical character of *Monotropa*.

GEO. LUXFORD.

ART. XVI.—*Notice of 'A History of British Forest Trees.'* By PRIDEAUX JOHN SELBY, F.R.S.E., F.L.S., Etc. London : John Van Voorst. Part 1. July, 1841.

THIS work is to appear in monthly numbers, and is printed uniformly with the series of British Quadrupeds, Fishes, Birds &c. The *first* number is now before us.

Although in announcing the Phytologist we have drawn no line between the botanical productions of Britain and the more showy plants of sunnier climes, yet we freely confess that we feel a strong bias in favour of everything indigenous ; and the discovery of a moss or some rare flower in an unrecorded and unexpected habitat, gives us more pleasure than the importation of cargoes of the choicest exotics : the word "British" compensating abundantly for sobriety of colouring or humility of stature. Influenced by this feeling we take up Selby's 'British Forest Trees' with the most perfect and entire good will, and it is with some feelings of compunction that we pen even a single line which may be taken for dispraise.

The number before us contains portraits of eight trees ; the lime, the American lime, the sycamore, the Nórway maple, the common maple, the horse-chesnut, the holly and the Robinia, commonly but erroneously called the acacia. Of these the maple and the holly are unquestionably British, the lime as cultivated and the sycamore have a doubtful claim, and the remaining four have no claim at all. This seems to us scarcely in accordance with the title. We do not complain that Mr. Selby has attempted any misrepresentation ; on the contrary his work supplies abundant evidence of our assertion, that four only of the trees are reputed to be British. We submit therefore whether it would not be well to amend the title of the work by the introduction of the words "indigenous or introduced : " this would give the public a much better idea of the real object of Mr. Selby's undertaking.

The figures of the trees are beautifully cut, but have the demerit, if so it may be called, of being drawn from extraordinary specimens ; thus, although we have no doubt that the figures are faithful portraits of certain trees that do exist, yet in exuberance of growth they so far

exceed their kith and kin, that we fail to recognise in them the forms of our old familiar friends. The detached figures of the leaf and florification are admirable: nothing can be better than the sprig of holly at p. 47; and the botanist will justly attach greater value to these details, than to the more showy effigies of the trees themselves.

The following specimens of the letter-press are from the descriptions of the sycamore and the common holly.

"Frequently as we hear the sycamore abused as not worth growing for the value of its timber, and devoid, as an ornamental tree, of beauty of outline and picturesque effect, we nevertheless agree with Sir T. Dick Lauder, that it is 'certainly a noble tree.' Vying in point of magnitude with the oak, the ash, and other trees of the first rank, it presents a grand unbroken mass of foliage, contrasting well, in appropriate situations, and when judiciously grouped, with trees of a lighter and more airy character, and affording, as Gilpin expresses it, 'an impenetrable shade.' Lauder well observes, 'The spring tints of the sycamore are rich, tender, glowing, and harmonious; in summer its deep green hue accords well with its grand and massive form, and the brown and dingy reds of its autumnal tints harmonise well with the mixed grove to which they give a fine depth of tone.' The colour of the bark is also agreeable to the eye, being of a fine ash grey, frequently broken into patches of different hues, by the peeling off, in old trees, of large flakes of the outer bark, in the manner of the plane."—p. 15.

"In natural woods, and especially in the deep glens and rocky denes of our northern districts, however beautiful and diversified the scenery may be, it never fails to receive an additional life and charm wherever the holly is present to intermingle its glossy foliage with the various tints around it. Oft have we stood and lingered in our walks to watch and admire the bright and fleeting lights produced by our favourite evergreen, as moved by the gentle zephyr, its polished leaves have reflected in diamond-like coruscations, the rays of light as they penetrated the recesses in which it grew, at the same time that its rich dark green foliage, by force of contrast, gave an additional value to the paler tints of the mountain ash, the hazel, and various other shrubs which grew around it."—p. 39.

ART. XVII.—*Varieties; Original and Select.*

11. *Value of Botanical Notes.* I am glad to see any fresh effort to extend botanical knowledge, and yours seems to be well calculated for this purpose. I hope that your solicitation for "the slightest piece of information" will be responded to, for these little affairs are sometimes productive of much pleasure and interest to succeeding botanists. I recollect an instance. A correspondent wrote to me for a specimen of *Aspidium fragile*, Swartz: I sought it in vain: but on turning to Withering I found mention of a station within two miles of my own house, where it had been found thirty years before by a lady who happened to have a temporary residence close to the spot. I went in search of it, and had the delight to find a single plant,—the only one I have ever discovered in the neighbourhood.—*Benjamin Maund; Bromsgrove, July 3, 1841.*

12. *Supposed effect of Chlorine on Blue Flowers.* As we are alluding to trifles, I will mention a circumstance which may lead to further enquiry. Near to the British

Alkali Works, in Worcestershire, I found a white variety of *Campanula patula*. This called my attention to the appearance of the species generally, and also to *Campanula rotundifolia*, both being abundant in the neighbourhood. I observed that the flowers of each species were in every instance much paler than I had been used to see them, and I have not the least doubt that the chlorine, which was then thrown off in great abundance from the alkali works, produced this effect. I am not supposing that the flowers, on expansion, were really bleached by a vitiated atmosphere; but I believe that the chlorine had an influence on the juices of the plants, and prevented the development of the usual colour of their flowers.—*Id.*

13. *Polypodium Dryopteris* and *Allosorus crispus* grow among rocky debris [on the Malvern Hills], a locality not mentioned in Mr. Newman's beautiful work on British Ferns, and thus proving that the geographical distribution of species can hardly be satisfactorily determined without the extensive aid of local botanists.—*Edwin Lees; South Cottage, Malvern Wells, July 12, 1841.*

14. *Asplenium viride*. While on the subject of ferns I will just mention a curious locality for the green spleenwort (*Asplenium viride*), proving at the same time the tenacity of existence exhibited by these mural insinulators. About fourteen years ago some plants gathered by the late Mr. T. B. Stretch, of Worcester, fell into my hands, and among them was a specimen of *Asplenium viride*, ticketed "Ham Bridge, Worcestershire." This is an old stone bridge over the river Teme, near Clifton, between Tenbury and Knightsford Bridge. Thinking this a curious habitat for this mountain fern, I took an early opportunity of examining the bridge, and did so for two or three successive years; but my search was vain, for the bridge had been recently repaired and whitewashed (*horribile dictu!*), and no trace of any fern or even plant could I find upon it. However, in 1836, happening to go that way again, I once more paused and leaned over the parapet of the bridge—scarcely believing my eyes, two specimens of the *Asplenium* were positively there and well fruited. One I gathered, and left the other as an "egg in the nest." That the fern had been almost obliterated, and its roots completely obscured and hindered from vegetating for some years by the villainous whitewash, appears I think very evident; but this fact seems to suggest that where a fern has once established itself, it may probably be *again found after the lapse of years*, though at intermediate times of examination apparently extinct.—*Id.*

15. *Dispersion of Seeds*. The modes by which the seeds of plants are transported about, are exceedingly various and well worthy of attention: and perhaps none are more so than those of Syngenesious plants, most of which have a downy egret, as the dandelion, thistle, groundsel, &c. I do not know a prettier sight than a dandelion-seed floating along beneath its feathery plume, on a gentle breeze: now erect, now lightly waving to one or the other side, yet still keeping its position, like the car of a miniature balloon; till at length it slowly descends, and fixes itself in some crevice of the earth, there to be nourished, far enough from its parent flower. Some seeds have attached to them a broad, thin blade (*samara*), as the ash, maple, &c., which forces them obliquely through the air, instead of perpendicularly: others are jerked to a distance by a peculiar mechanism in the seed-vessel: others are carried to distances in the stomachs of birds, their vegetative power increased, rather than destroyed, by the process of digestion. All show a power at work, to which the wisdom of man is foolishness. * * One of the most curious of our forest seeds is that of the bass-wood, [*Tilia americana*, Linn.] You may see one yonder slowly descending through the air: it whirls round horizontally with great rapidity, as it falls, as if on an axis or pivot.

Take it up and examine it; here is a long, ovate-lanceolate leaf (*bractea*), transversely bent in the middle: from the angle on the under side proceeds a slender stalk, at the end of which is fixed a round body like a pea, which looks, as it descends, as if it hung by a thread from the leaf-like wing: this contains the seed.—*Gosse's 'Canadian Naturalist.'*

16. *Splitting of trees by the freezing of water.* Old trees, when cut down, are often found to have the heart-wood so separated from the sap-wood, as to fall apart when a log is split through the centre; and we find that the crevice or intermediate space has been occupied by a film of ice. This explains those loud reports which we heard just now, and which so often occur in the forest in frosty weather. Some water has lodged in the tree — perhaps in some maggot's or woodpecker's hole — which freezing, rends the wood by its irresistible force of expansion; into the rent so formed, the water percolates as soon as a thaw comes, and freezing again, extends the crevice downwards, each rent attended with these sudden and startling sounds.—*Id.*

17. *Arrow-poison plant.* Our path was over "hill and dale," mostly in a N.N.W. and N.W. direction. It became every moment wilder: we had to cross several mountain-streams, which flowed in deep beds, precipitating at their banks a ferruginous matter; underbush became scarce; it appeared as if Nature here delighted only in gigantic forms. Our Indians thought they had mistaken the track; but as we arrived at a stream which ran rapidly over the sloping ground, exhibiting granitic shelves, we observed that several paths united; and crossing the brook our guides stopped, and pointing to a ligneous twiner which wound itself snake-like from tree to tree, they called out "Urari," the name of the plant in the tongue of our guides. My wish was thus realized; and that plant which Baron de Humboldt was prevented from seeing, and which was one of the chief objects of Mr. Waterton's 'Wanderings,' but without success, I now saw before me.—*Schomburgk in 'Ann. and Mag. Nat. Hist.' July, 1841.*

18. *Preparation of the Indian arrow-poison.* It is only the bark of the woody parts and its albumen which are considered to possess the poisonous principle in the highest degree. The stem of the plant is therefore cut into pieces about three feet in length, off which the bark is stripped, and after having been pounded it is steeped in water, for which purpose a new earthen vessel is used; here they allow it to remain for some time well covered, until the water is of a yellowish colour, when it is filtered through a funnel-shaped matappa lined with plantain-leaves. Several other plants have been meanwhile procured, and after their juice has been extracted in a similar manner, this extract is kept ready to be added to the former, at the moment it has been concentrated on a slow fire to the consistency of a syrup. The addition of that juice gives a darker colour to the Urari, which, from the time of its becoming concentrated, has the appearance of tar: it is now put into small calabashes, which are covered with leaves to prevent the poison from coming in immediate contact with the air. * * This is the unadorned account of the preparation of the Urari, and the method which is followed by the Macusis at and about Pirara, and the Wapisianas of the Canuku mountains where the plant grows. There appears to be no danger whatever in the preparation, and the vapours which are disengaged are entirely innocent; but the circumstance that it requires several days to watch the pot closely on the fire and to take off the scum &c., before it is properly concentrated, as well as the superstitious customs with which the poison-maker, for his own advantage, surrounds the preparation of it, prevent the Indian, with his natural indolence, from making it more than once or twice a year. *Id.*

18. *Effects of the poison.* As much as I had heard of this fatal poison, I nevertheless cannot abstain from noting the astonishment by which I was seized when I saw

it used for the first time. We travelled over the savannahs girt by the Pacaraima mountains; a deer was discovered browsing in the high grass before us. Lieutenant Haining, of the 65th regiment, my faithful travelling companion, was too far behind with his gun for us to await his coming up, and one of the Macusi Indians took a poisoned spike from his sarima and fixed it to his arrow. Cautiously he stole upon the unsuspecting deer, and shot the arrow into its neck; it made a jump in the air, fled with the speed of the wind over the savannahs, but it had scarcely run forty yards when it fell panting to the ground, and expired. * * I have seen the tapir, while swimming across the Rupununi, so slightly wounded that the spike had just penetrated through the thick skin; nevertheless it took effect, and the animal expired. Numerous are the birds of larger and smaller size which I have seen thus secured.—*Id.*

[The plant from the juices of which the Macusi and Wapisiana Indians prepare their fatal arrow-poison, is the *Strychnos toxifera*, Schomb., 'Hook. Ic. Pl.' t. 364 and 365: discovered by M. Schomburgk, in 1835. It is a native of South America, and appears only to have been found in the granitic mountains of Canuka or Conocon, in lat. 3° 10' N.—*Ed.*]

20. *New Botanical Work.* Miss Roberts, the well-known authoress of many popular works connected with Natural History, is preparing for publication 'The Dial of Flowers. We anticipate much pleasure from perusing it.—*Ed.*

ART. XVIII.—*Proceedings of Societies.*

ROYAL ASIATIC SOCIETY.

June 19.—The secretary read a botanical description of the *Lodoicea Sechellarum*, by M. Bernard. This production, which has long been known under the appellation of the double sea-cocoa-nut, grows only on two small islands of the Sechelles group, nearly under the equator. Many centuries before the place of its growth was known, portions of this nut had been frequently carried by the oceanic currents to the Maldivé islands, &c.; and the most absurd fables were current respecting its origin and virtues. It was generally supposed to grow at the bottom of the sea; and the votaries of Vishnu devoutly believed that when that deity was churning the ocean, he broke off several of the branches from the tree, that they might float upon the surface, and be a specific for all the ills that afflict mankind. The *Lodoicea* attains a height of 80 or 90 feet, and is surmounted by a beautiful crown of winged and palmated leaves. The leaves open like a fan; they are of large size, often attaining a length of 20 feet with a breadth of 10 or 12. The fruit is generally double, sometimes triple and even quadruple, and with its enclosing drupe attains a length of 13 inches with a circumference of 3 feet; and sometimes weighs from 40 to 50 lbs. A remarkable circumstance connected with this tree, is the length of time necessary to mature its fruit, and the long duration of its bloom. It bears flowers and fruits of all ages at one time. It is to be regretted that this tree is not cultivated, and that a practice has prevailed of cutting it down in order to get at the fruit and tender leaves. The writer of the notice, in fact, expresses his fears that the species will be ere long entirely lost.

The uses of the double sea-cocoa-palm are numerous. When young the fruit is a refreshing article of food: when ripe it furnishes oil. Its germ, when developed, is a sweet dish. The hard shell is formed into vessels for carrying water, &c.; and the whole nut is used in India as a medicine. The wood is used for building purposes &c.: its leaves for thatching, and when platted they are made into hats, baskets, fans, and a number of tasteful works for which the ladies of the Sechelles are celebrated.—*Athenæum*, July 8, 1841.

BOTANICAL SOCIETY OF LONDON.

July 8th.—William White, Esq. in the Chair. The Rev. C. A. Johns, F.L.S., exhibited specimens of a remarkable variety of *Scolopendrium vulgare*, discovered on a garden wall at Merrefield, near Saltrum, Devon. About an inch above the root the rachis forks so as to bear two perfect fronds, the summits of which are repeatedly divided into ligulate obtuse segments; the whole plant not exceeding four inches in length.

Mr. J. also exhibited a probably new species of *Sphagnum*, discovered in May, 1841, at Hoe Lake, Trenishoe, Devon, floating in a pool formed by a mountain stream. The leaves, which are a quarter of an inch long, are elliptic-lanceolate, acute, and reticulated very differently from those of any other British species. Mr. Brewer exhibited living specimens of *Iris fatidissima*, *Epipactis palustris*, and other interesting plants from Beigate, Surrey. Dr. John Lhotsky read a paper "On Phytogenesis, or the Origin of Plants."—*G.E.D.*

THE PHYTOLOGIST.

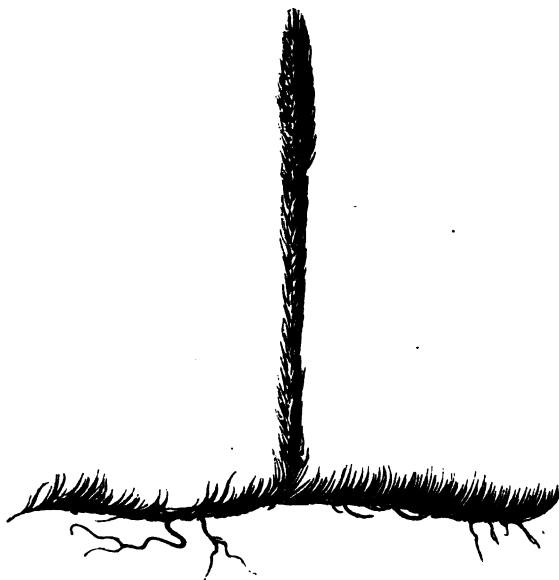
No. IV.

SEPTEMBER, MDCCCXLI.

PRICE 6D.

ART. XIX.—*A History of the British Lycopodia, and allied Genera.*

By EDWARD NEWMAN. (Continued from page 36).



THE MARSH CLUB-MOSS.

LYCOPodium INUNDATUM of Authors.

LOCALITIES.

- England. Cambridgeshire; Gamlingay Heath, *Messrs. Isaac Brown, A. Wallis and T. Sansom*. Cumberland; Wastewater, *Mr. S. P. Woodward*. Devonshire; Trentishoe bog, near Linton, *Mr. Ward*. Kent; near Bromley, *Mr. S. P. Woodward*; Keston Heath, *Mr. W. Pamplin*; Ham Ponds, near Sandwich, *Mr. Ward*. Lancashire; near Manchester, *Mr. T. Sansom*. Middlesex; Hampstead and Bagshot Heaths, *Ray*. Norfolk; not unfrequent on wet heaths; Moushold Heath, Stratton Strawless, Horsfield, Felthorpe and Holt Laws, *Mr. S. P. Woodward*. Surrey; near Esher, *Mr. S. P. Woodward*; Oxshot Common, *Mr. Cameron*; Leith Hill Common, *Mr. Sansom*; Woking Common, *Mr. Luxford*; Reigate Heath, 1841, *Mr. J. A. Brewer*; Wimbledon Common, Shirley Common, *Mr. W. Pamplin*. Sussex; Tilgate Forest, *Mr. H. M. Holman*. Warwickshire; Coleshill Heath, *Rev. W. T. Bree*. Yorkshire; near Settle, *Mr. S. P. Woodward*.
- Scotland. Nairnshire, on moist heathy ground, near Cawdor; *Drs. Balfour and Greville*; Cawdor Woods; *Mr. W. A. Stables*.
- Wales and Ireland. Unrecorded.

THE Marsh Club-moss appears to occur, although not abundantly, on most of the heaths and commons in the south of England, particularly where turf has been pared from the surface. In the immediate neighbourhood of London many habitats have been recorded; those given above I have had opportunities of verifying. In the midland and northern counties it is less common; in Scotland and Wales it is of comparatively rare occurrence; and in Ireland it is altogether unknown. It is found on wet or turfy ground, generally preferring a sandy or gravelly soil: its non-appearance in Ireland appears unaccountable.

Our early botanists were not generally acquainted with this species. It is described and figured by Vaillant and Dillenius, but the latter author has given it a branched and luxuriant appearance which I have never seen it assume. Tragus and Gerarde do not mention the plant, and although Plukenet and Morison have been quoted as authorities, I much doubt the correctness of the references. Its medical virtues have not been recorded.

The marsh club-moss is an insignificant and by no means striking plant. In its foliage and solitary spike it more nearly resembles *Lycopodium clavatum* than any other British species; but the nearly circular capsule and other distinguishing characters separate it widely from that, and indeed from all the other indigenous *Lycopodia*.

The roots are stout; they do not penetrate the earth so deeply as those of either of the species previously described: the prostrate stem creeps close to the soil, and is occasionally, but rarely, branched, the branches still remaining prostrate; the stem appears to be of slow growth, and never increases in size in the same way as that of the species before described; between the points where it is attached by the roots, the stem sometimes assumes an arched appearance.

The growth of each year, with the exception of its extreme point (which remains firmly rooted to the ground), dies during the succeeding winter; the dead portion for some months adhering to the soil, and even after decay leaving a conspicuous black line on the surface. In the autumn each plant throws out an erect solitary spike, situated on a foot-stalk which usually rather exceeds the spike itself in length.

Every part of the plant is densely clothed with linear acute leaves; those on the prostrate stem are invariably curved upwards; on the footstalk they are rather more scattered, erect and without curvature. The leaves or bracts on the spike differ from the others in being broader at the base, and are not unfrequently furnished with a single tooth

on each side. The capsules are situated at the base of the bracts; they are nearly spherical, and of a pale yellowish green colour.

In my observations on the supposed uses of *Lycopodium clavatum* a ludicrous blunder occurs. I have surmised that Lightfoot, whose 'Flora Scotica' was published in 1777, borrowed an idea from Wahlenberg, who wrote in 1826. The name of Mattegras is of old date, so that the reasoning of the passage is still sound.

EDWARD NEWMAN.

ART. XX.—*Additions to Luxford's 'Reigate Flora.'*

Communicated by H. M. HOLMAN, Esq.

18, St. Thomas's St. East, August 12, 1841.

SIR,

The following plants have been detected in the neighbourhood of Reigate, by various observers, since the publication of the 'Reigate Flora' in 1838. If you think the list possesses sufficient interest to be printed, it is quite at your service.

Yours, &c.

H. M. HOLMAN.

To the Editor of 'The Phytologist.'

- | | |
|--|--|
| <i>Hippuris vulgaris</i> . Plentiful in the mill-pond at Leatherhead. | <i>Avena pubescens</i> . Very abundant at the foot of Reigate Hill. |
| <i>Lemna trisulca</i> . Castle-moat. | <i>Dipsacus pilosus</i> . Right hand of the road from Wonham Mill to Betchworth; 1841. Norbury Park. |
| <i>Scirpus fluitans</i> . Pools on Earlswood Common. | <i>Centunculus minimus</i> . Abundant on Reigate Heath. |
| <i>Eriophorum vaginatum</i> . Leith Hill, plentiful. | <i>Potamogeton pectinatus</i> . Pond in a copse at the foot of Reigate Hill. |
| <i>Milium effusum</i> . Plentiful in a copse to the right of the foot-path leading from Rice Bridge to Gadbrook: lane leading from Reigate Heath to Colley Hill. | <i>Cynoglossum sylvaticum</i> . Hedges left of the road between the Burford Inn and the Running Horses, Mickleham; also plentiful in Norbury Park. |
| <i>Aira flexuosa</i> . Redstone Hill, near Mespilus germanica: on Reigate Heath, in Chart Lane, &c.; common. | <i>Hottonia palustris</i> . Ditches at Burstow. |
| <i>Poa nemoralis</i> . On both banks of the lane leading from Cockshot Hill to Gander's Hall. | <i>Campanula latifolia</i> . A considerable quantity in a copse on High Trees Farm. |
| <i>Triodia decumbens</i> . Redhill. | <i>Rhamnus catharticus</i> . Hedges at the foot of Reigate Hill and Colley Hill. |
| <i>Festuca bromoides</i> . About Redhill. | <i>Cuscuta Europæa</i> . Banks of the Mole between Mickleham and Leatherhead, on nettles and mallows. |
| <i>Bromus secalinus</i> . Corn-fields between Merstham and Coulsdon. | |

- Bupleurum rotundifolium*. Two specimens in a barley-field on the High Trees Farm, 1838: field near the Hermitage on Buckland Hill, 1841.
- Oenanthe fistulosa*. Plentiful in Merstham pools.
- Galanthus nivalis*. Extremely plentiful in a field near the farm-house at Whiggey: banks of the Mole at Brockham.
- Narcissus Pseudo-narcissus*. Meadow near Horley mill.
- *biflorus*. Meadow right hand of the London road beyond the tunnel; and at Flanchford.
- Lilium Martagon*. Copse between Mickleham and Headley.
- Ornithogalum nutans*. Plentiful on the bank right of the lane leading from Linkfield Street to Wray Common.
- Luzula Forsteri*. Wood by the fullers' earth pits at Nutfield.
- Triglochin palustre*. Nutfield Marsh.
- Daphne Laureola*. Nutfield: Merstham: and in a wood behind Juniper Hall, Mickleham.
- Polygonum Bistorta*. At Nutfield and Flanchford.
- Sedum reflexum*. By the side of the London road, at Kingswood.
- Pyrus Aucuparia*. Redstone Hill.
- Fragaria elatior*. Fridley Copse.
- Helleborus viridis*. A considerable quantity on Reigate Hill, near the east end of the hedge-row on the north side of the field opposite the Gatton Inn: also in Fridley Copse, near Mickleham.
- *fatidus*. Foot of Mickleham Downs.
- Lathyrus sylvestris*. Abundant on the chalk hills, between Merstham and Coulsdon.
- Astragalus glycyphyllos*. Abundant on the chalk hills between Merstham and Coulsdon.
- Trifolium subterraneum*. Plentiful on Redhill; Wray Common; and Reigate Heath.
- *striatum*. Plentiful on the Park Hill; Wray Common; and in a field by Blackboro' Mill.
- Cnicus pratensis*. Bog between Peasepottage gate and Starve-mouse plain, Tilgate Forest, Sussex.
- Petasites vulgaris*. Betchworth: and plentiful on the right hand side of the London Road, about 100 yards beyond the Feathers Inn, Merstham.
- Thrinicia hirta*. Earlswood Common.
- Typha angustifolia*. Pool at Merstham.
- Mercurialis annua*. By the ruins of Betchworth Castle.
- Euphorbia platyphylla*. Field near the Hermitage, on Buckland Hill.
- Aspidium angulare*. Plentiful in Chart Lane.
- Lycopodium Selago*. Leith Hill.
- Pitularia globulifera*. Below New Pond, on Earlswood Common.
- Phacum crispum*. Redstone Hill.
- *subulatum*.
- *curvicolium*. Bank by the side of the Brighton road, between Crawley and Handcross.
- Sphagnum obtusifolium*, *squarrosum*, and *acutifolium*. Bogs on Reigate Heath.
- Gymnostomum truncatulum*. Banks about Redhill.
- *pyriforme*. Clover field at Meadhole.
- Polytrichum undulatum*. Banks, common.
- *piliferum*. Reigate Heath.
- *juniperinum*. Redhill and Reigate Heath.
- *commune*. Reigate Heath.
- *aloides*. Shady banks.
- *nanum*. Reigate Heath.
- Tortula muralis*. Walls, common.
- *ruralis*. Roofs of old buildings, and on walls.
- *subulata*. Moist banks, common.
- *unguiculata*.
- *fallax*. Common.
- Grimmia apocarpa*. Walls of the Vicarage garden.
- *pulvinata*. Walls, common.
- Weissia cirrata*. Old palings.

- Weissia curvirostra*. On old palings.
 ——— *controversa*. Banks, abundant.
Dicranum bryoides. Moist banks, frequent.
 ——— *taxifolium*. Side of a ditch on Wray Common; lane behind the park.
 ——— *glaucum*. Reigate Heath, abundant.
 ——— *flexuosum*. Lane west of the Park.
 ——— *scoparium* and *heteromallum*. Common.
Didymodon purpureum. Reigate Heath and Redhill.
Funaria hygrometrica. Reigate Heath, and on walls.
Orthotrichum anomalum and *affine*. On trunks of trees, common.
 ——— *striatum* and *Lyellii*. Gatton wood, on trees.
 ——— *crispum*. Beeches on Reigate Hill.
 ——— *pulchellum*. Rather plentiful on the beeches on Reigate Hill.
Neckera crispa. In the greatest profusion on the stumps of hawthorns on Buckland Hill; and amongst the juniper-bushes on Reigate Hill.
Anomodon viticulosus. Reigate Hill; and frequent on stumps of trees.
Daltonia heteromalla. Common on trunks of trees.
Fontinalis antipyretica. Very fine in a pool near the Church.
Bartramia pomiformis. Lane behind the Park; high bank at Buckland.
 ——— *fontana*. Reigate Heath, barren; in fruit at Redhill.
Hypnum complanatum. Trees, common.
 ——— *undulatum*. Stump of a tree in the lane west of the Park.
Hypnum serpens. Banks, frequent.
 ——— *Schreberi*. Wray Common and Reigate Hill.
 ——— *purum*. Common.
 ——— *sericeum*. Trees and walls, common.
 ——— *lutescens*. Reigate Hill.
 ——— *alopecurum*. Banks, frequent.
 ——— *dendroides*. Nutfield Marsh.
 ——— *curvatum*. Gatton woods, frequent.
 ——— *splendens*. Reigate Heath, &c.
 ——— *proliferum*. Banks, common.
 ——— *praelongum*. Common.
 ——— *abietinum*. Reigate Hill, among Neckera crispa and Hypnum lutescens.
 ——— *piliferum*. Banks.
 ——— *rutabulum*, *velutinum*, *confertum* and *striatum*. Common.
 ——— *cuspidatum*. Reigate Heath.
 ——— *triquetrum* & *squarrosum*. Common.
 ——— *palustre*. Redhill.
 ——— *aduncum*. In great profusion in bogs on Reigate Heath.
 ——— *cupressiforme*. Common.
 ——— *molluscum*. Reigate Hill.
Bryum palustre. Reigate Heath; rarely in fruit.
 ——— *pyriforme*. Sand-bank near Dorking.
 ——— *argenteum*. Walls and banks, frequent.
 ——— *roseum*. Lane west of the Park; and Reigate Heath.
 ——— *capillare* and *cæspitium*. Walls and roofs.
 ——— *ligulatum*. In fruit at Buckland, 1839 and 1840.
 ——— *hornum*. Banks, frequent.
 ——— *cuspidatum*. Banks, frequent, always barren.

Additional localities for some of the rarer plants of the Reigate Flora; the figures refer to the pages of that work in which the plants are recorded.

Iris fatidissima, 5. Copse on right hand of the lane leading from Reigate Heath to Colley Hill.

Scirpus lacustris, 5. Pond at Frenches.

Arundo Phragmites, 10. Pond left of the lane leading from Reigate Heath to Colley Hill: pond in Gatton Park.

Lithospermum officinale, 16. Field left hand of the lane leading from Reigate Heath to Wonham Mill: copse on Brightam's Farm, Wray Common.

Anagallis cærulea, 17. High Trees Farm.

Hyoscyamus niger, 19. Redhill, abundant.

Myosurus minimus, 29. Cornfields at Flanchford and Santon.

Polygonum dumetorum, 35, 91. Hedge left hand of the lane leading from Redhill to Turner's Croft; plentiful in 1839.

Chrysosplenium alternifolium, 38. Bog near the Somers Arms, Redhill; and at Littleton.

Ajuga Chamæpitys, 50. Plentiful on Buckland Hill, 1838.

Lathræa squamaria, 54. Very abundant in Fridley Copse, near Mickleham.

Lathyrus Nissolia, 63. Field on Colley Farm.

Orchis Morio, 74. Pastures on High Trees Farm.

Epipactis purpurata, 77. Wood on the top of Colley Hill: and in Gatton Wood.

——— *palustris*, 77. Amongst the willows below Merstham Pools.

Lycopodium inundatum, 88. Reigate Heath, by the bog nearest the Dorking road.

ART. XXI. — *Descriptions of two new Orchidaceous Plants from Para.* By FREDERICK WESTCOTT, Esq., A.L.S., Honorary Secretary to the Birmingham Botanical and Horticultural Society.

THE two new plants described below are natives of Para, where they were collected by S. Dickinson, Esq. in the year 1839, and transmitted by him to George Barker, Esq. in whose extensive collection at Springfield, near Birmingham, they flowered during the present spring.

Nat. Order.—ORCHIDACEÆ. Tribe.—MALAXIDÆ, *Lindl.*

Genus.—PLEUROTHALLIS, *R. Br.*

Pleur. barbata. Foliis lanceolatis, ovatis, apiculatis: sepalis subæqualibus, patentibus, lateralibus reflexis, basi connatis, supremo subreflexo; petalis sepalis multò minoribus, subciliatis, acutis; labello integerrimo, linguæformi, medio incurvo, apice acuto, carnosio, recurvo, suprâ glabro, subtus barbato.

Plant about 3 inches high. Stem smooth, angular, with 2 entire sheaths. Leaves fleshy, smooth, keeled, the keel terminating below the apex and producing a point, the older leaves have their margin more or less recurved. Flowers minute, racemose, varying in number from two to many, as would appear from examining the old scapes. Sepals rather ovate-lanceolate, smooth, rather obtuse, the lateral ones combined from the base half way up, then free; colour purple, except at the base, and if examined with a glass of moderate magnifying power, they present a pretty papillose appearance. Petals much smaller than the sepals, rather ciliate, acute, or perhaps approaching to acuminate. Labellum entire and strongly bearded beneath, incurved in the middle; apex fleshy, acuminate, reflexed, and in colour similar to the sepals and petals. Column smooth, about half the length of the petals, tipped with purple at the back near the apex. Clinandrium slightly laciniate. Stigmatic cavity ovate. Pollen-masses 2, pear-shaped. Anther-case smooth, 1-celled.

The flowers are very small, but singularly pretty if examined with a magnifier of moderate power.

Tribe.—VANDEÆ, *Lindl.*

Genus.—NOTYLIA, *Lindl.*

Not. laxiflora. Labello unguiculato, ecalloso, cordiformi, acuminato: perianthiis subæqualibus: petalis subacuminatis, 2- vel 3-punctatis: sepalis lateralibus coalitis, apice emarginatis subrevolutis.

Pseudobulbs small, about 6 lines high, furrowed. Sheaths scarious, longer than the pseudobulbs. Leaves ovate-lanceolate, fleshy, apiculate, revolute, 2 inches long and about 1 inch broad. Scape 6 inches long, inflorescence spreading. Peduncles about 4 lines long. Bracts ovate, acuminate, about one fourth the length of the peduncle. Petals rather shorter than the sepals, acuminate, of a pale yellowish white colour, marked near the base with two or three orange-coloured spots. Sepals of a yellowish green colour, upper one acuminate, the lateral ones combined from the base to the apex, where there is a notch, apex slightly recurved. Labellum small, unguiculate, the base of the lamina is heart-shaped, and of a yellowish colour. Column straight, about the length of the labellum, and in colour similar to the petals. Ovary about one-third the length of the peduncle, furrowed.

Birmingham, April 16, 1841.

FRED. WESTCOTT.

ART. XXII.—*Analytical Notice of the 'Transactions of the Linnean Society of London,' vol. xviii. pt. 4. August, 1841.*

THE 18th volume of the Linnean Transactions is just completed by the publication of the 4th part. Ten of the papers out of the fourteen contained in this part are botanical; and of such of these as may be considered most interesting to the British botanist, we intend to give as full an analysis as our limits will allow.

ART. XXX.—*Observations on the Structure and Development of the Organs of Pilularia globulifera. In a Letter to R. H. SOLLY, Esq., F.R.S. and L.S. By WILLIAM VALENTINE, Esq., F.L.S.*

MR. Valentine, already well known by his papers 'On the development of the Theca, and on the sexes of Mosses,'* and 'On the existence of Stomata in Mosses,'† has in the article before us recorded the results of his investigations on the structure and economy of an interesting British plant, of rather unfrequent occurrence. We do not strictly observe the order adopted by the author in treating on the various parts of the subject, but however, like him, we begin with the sporules.

The involucre of *Pilularia globulifera* contains two kinds of bodies occupying distinct sacs. The first kind are found chiefly but not exclusively in the upper part of the involucre; they are round, not more

* 'Trans. Linn. Soc.' xvii. 465.

† Id. xviii. 239.

than the 460th of an inch (in diameter?) and about forty in each sac: these bodies have been called pollen by some botanists and anthers by others, but the author proves Dr. Lindley's conjecture that they are abortive sporules, to be perfectly correct. The second kind are of an oblong pyriform shape, slightly constricted in the middle, with a more or less plicate conical projection at one end; these are far less numerous than the first kind, and occur singly in each sac; they are about the 60th of an inch broad, and have the power of germinating, which the first kind do not appear to possess. The author considers these larger bodies to be "undoubted sporules;" each of them consists of three coats, and the interior is occupied by a grumous fluid and particles of matter of various sizes and mostly ovate figure. The conical projection of the sporule is a prolongation of the middle coat, and is perforated at the apex: the inner coat is not continued into the cone, but on the removal of that part may be seen closing the aperture, in the form of a transparent membrane marked with three lines radiating from the centre, which indicate a valvular structure.

The progress of development of these sporular bodies is minutely detailed, and illustrated by a number of beautifully executed figures.

"A transverse section of the involucrum, when about the size of a small pin's head, shows it to consist of four integuments containing a mass of very delicate, spongy, compressible, cellular tissue, subdivided into four equal triangular portions, by four lines radiating from the centre."—488.

In the centre of each of the four triangular portions is a cavity, into which projects a number of nipple-like processes attached to a common receptacle. As the involucrum advances the cavities increase in size by a gradual recession of the surrounding cellular tissue, caused by an inherent condensation, of which the four radiating lines are the result; and at maturity this condensation "is so complete, that the whole of the spongy tissue is condensed into four dissepiments, dividing the cavity of the involucrum into four equal loculi." The nipple-like processes continue to increase in size, and on examination are found to be hollow sacs, each containing a quantity of grumous matter, and "about ten soft, rather opaque, pulpy bodies, which are evidently compounded of four closely connected parts, so placed on each other as to form a cone with a triangular base." Such of these bodies as occupy chiefly the upper portion of the involucrum,—

"Enlarge, become pellucid, and recede from each other, but continue to be attached to each other by four stalks as long as half their diameter, which meet in one centre. It is now evident that these four bodies or sporules are contained in a mother-cell, which most probably existed before, but on account of its close approximation

to the four united sporules could not be seen. On the surface of each of these sporules are three short lines, which radiate from the insertion of the stalk."—489.

After a time the mother-cell is ruptured, the sporules separate from each other at the centre where the stalks meet, so that each is at first furnished with a short tail, which soon disappears. These sporules at length become perfectly opaque and white, by the gradual deposition of matter on the outer surface, and then they contain a little grumous matter, having previously been quite empty. The mother-cell entirely disappears, but the author is "inclined to think that a portion of it becomes attached to the surface of each of the sporules, of which there are about forty in each sac." After arriving at this stage no further change appears to take place.

Up to the time of their becoming pellucid and receding from each other, the sporules in the lower part of the involucre are developed in precisely the same manner as those in the upper, but here the analogy ceases. At this period, instead of the mother-cell being broken up and disappearing while the sporules remain entire, the greater number of the sporules themselves are ruptured and the unchanged mother-cell continues to envelope them.

"The shrivelled remains of the ruptured sporules continue to be attached to each other by their stalks, and the mother-cell remains perfect; in short no further change takes place, for they may be found in this state in the same sac with the ripe sporules. The two or three unruptured sporules which are single in each union * * enlarge, each struggling for the mastery, and it is not long before one prevails, the smaller ones rupturing and passing into the same state as those first ruptured. The sole remaining sporule now enlarges rapidly, assumes a pyriform shape, and the mother-cell gradually recedes from it by a still more rapid enlargement, except around the narrow extremity to which the three ruptured sporules which form the union are attached, where the mother-cell has contracted an adhesion. It appears that this dilatation of the mother-cell is caused by a secretion of fluid between it and the sporule, for if the cell be punctured the fluid will escape, and the cell return by its elasticity to the same dimensions as the sporule."—p. 490.

This stage is marked by the disappearance of the three ruptured sporules, which till now had remained attached to the growing one: the author conjectures that they may escape by an aperture in the mother-cell, which is visible at a later period. A deposition of opaque matter on the mother-cell now takes place, and forms the outer coat of the sporule; and —

"When the outer coat is completely formed, the mother-cell or middle coat ceases to enlarge, whilst the inner sac or true sporule continues its growth until it is checked by coming in contact with the inner surface of the mother-cell, to which, in its mature state, it is firmly adherent. The sporule is at first perfectly pellucid and deficient of

all granular contents; it is not till after the addition of the outer coat that the grumous granular matter is secreted."—491.

The germination of the sporules is minutely described by the author.

"The first external sign of germination is either the appearance of four cells projecting through the apex of the conical projection, or a gradual swelling of that part. * * The enlarging cellular mass then distends the conical projection, unfolding the plicæ of that body, and at length appears externally with four of its cells projecting beyond the general mass, and compressed into a quadrangular form. * * Soon after the exposure of the entire germ, which is effected by the reflection of the valves [of the internal membrane] and conical membrane over the side of the sporule, where they lie quite concealed by the germ, little fibrillæ or rootlets begin to shoot from one side. They are simply articulated tubes, or elongated cells applied end to end, with frequently a bulbous extremity; and each is produced from one of the cells of the germ."—485.

Shortly after the appearance of these rootlets the cells of the germ become flatter and more intimately connected with each other; and at the same time that part of the germ which closes the cavity of the sporule becomes hollow, and afterwards points in two places. These points gradually lengthen, and on dissection each will be found to consist of a closed sheath, one containing the first leaf and the other a root: these two apparently distinct sheaths communicate with each other, and envelope nearly the whole of the germ. The young leaf, when rather longer than the sporule, bursts through its sheath, and the root protrudes before it is as long as the sporule.

"After the leaf has grown to be many times the length of the sporule, or about two lines long, another leaf grows from the germ close to the first, to which it is in all respects similar; and then a bud begins to be developed from some indefinite part of the germ, but like the leaves and root, from within the sheath, which is now frequently much lacerated. This bud is covered by a peculiar kind of jointed hairs, whose attachments are lateral, at a short distance from their bases, and which contain a few colourless granules. This bud sometimes appears after the first leaf, in which case there is no second primordial leaf formed; and is the rudimentary stem, the first growth from it being a leaf, which exhibits, although in a small degree, the first evidence of gyration, and shortly after a root, which is furnished with its own sheath. * * The roots are all formed in sheaths, through the apices of which they ultimately burst, the sheath continuing to embrace the base of the root, whilst a distinct and far more delicate sheath closely embraces its point."—487.

"This account of *Pilularia* shows that it is incorrect to say of *Acrogens* that 'germination takes place at no fixed point, but on any part of the surface of the spores;' for it is quite certain in this instance that germination invariably takes place at a fixed spot, which may be pointed out before germination has commenced. It is at that part of the sporule indicated by the three radiating lines which appear to have been produced by the pressure of the three other sporules that originally helped to constitute the quaternary union; and as the spores of all the other tribes appear, according to Mohl,

to be developed in similar unions, it is most probable that similar lines indicating a valvular dehiscence also exist on them. This is certainly the case in some mosses, for instance, in *Cedipodium*, and in *Isoëtes*, *Lycopodium*, and *Osmunda regalis*; and in those instances where such a structure is not visible, it is probably owing to a thickening of the membrane, or a deposition of opaque matter on its surface, as in *Pilularia*. In the mature sporules of *Pilularia* they can only be discovered by dissection, and in the abortive ones they cannot be discovered at all after the first stages of their growth; whilst, again, the sporules of *Jungermannia complanata* exhibit similar lines after they have been submitted to the action of sulphuric acid. After the protrusion of the germ, however, it does appear to be quite immaterial from what part of the germ the first leaves, root or stem shall arise.

"It is almost superfluous to point out, that these primordial leaves, if the sporules be considered as seeds, have no analogy, except in their use, with cotyledons, because true cotyledons pre-exist in the seed, whereas these are the product of germination. But according to the view of the nature of sporules which I have endeavoured to establish, *Pilularia* must be considered as nearly allied to monocotyledons in its germination. * * I shall conclude these observations by stating that I have not been able to detect any organs which, as in the mosses, can by any possibility be supposed to perform the office of impregnating the sporules."—492.

ART. XXXI. — *Supplementary Observations on the Development of the Theca, and on the Sexes of Mosses. In a Letter to R. H. SOLLY, Esq., F.R.S. and L.S.* By WILLIAM VALENTINE, Esq., F.L.S.

THE author commences his letter by observing that subsequent examination of mosses leads him to concur in Mohl's views with regard to the fourfold development of sporules in a mother-cell, a fact of which he had expressed some doubt in a note appended to his paper 'On the development of the Theca, and on the Sexes of Mosses,' in 'Trans. Lin. Soc.' xvii. 481. He says he now feels himself "bound to confirm the accuracy of Mohl's observation in this respect:" and then proceeds to give a detailed account of the structure of the theca, and of the development and tetrahedral union of the sporules, as observed by himself in *Cedipodium Griffithianum*, a moss found plentifully on Snowdon, and examined in a recent state.

From these observations it appears that like those of *Pilularia*, the four sporules of *Cedipodium* are piled on each other in the mother-cell, "so as to form a cone with a triangular base;" like them, also, the four are connected with each other, when young, by a "very minute stalk, situated at the junction of three radiating lines." The author has "observed several instances in which the mother-cell contained but one sporule, which was in all the cases round, and did not exhibit any signs of a stalk, or of radiating lines on its surface."

The following observations on the analogy subsisting between thecæ and anthers, and on that between sporules and pollen, which the

author evidently considers to be essentially identical, are exceedingly interesting.

"In the first place, the sporules are formed in thecae which have a great resemblance to some anthers. They are in most instances surrounded by a perichætium, which is a collection of modified leaves analogous to the perianth. They are either sessile, or seated on a stalk or seta, which may be named the filament. In *Sphagnum* the theca is elevated on a pedicel or leafless prolongation of the axis, of which peculiarity the anther of *Euphorbia* is a parallel instance. The thecae are one-celled, yet they have a columella, which may be likened to the connectivum; and although the connectivum usually divides the anther into two cells, *Callitriche* is an instance in which there is but one cell; and there are examples in which the cavity is spuriously divided into four cells, as in *Tetratheca*, which in this respect resembles the theca of *Polytrichum*; and in the fact of evacuating its contents by a single pore, resembles the general structure of thecae. All thecae are lined by a distinct membrane, and so nearly does this resemble the endothecium of an anther, that in *Jungermannia multifida* its tissue is fibrous. The remarkable manner of the development of sporules and pollen is a most convincing analogy; they are developed in unions of fours in the cavities of simple cellules; in fact, they are secretions in the cellules which occupy the interior of the theca or anther, and are the only instances on record within my knowledge, of organized secretions in the cavities of simple cellules. Although the tetrahedral union of both sporules and pollen is almost always dissolved at an early period, yet in some instances, as in *Cedipodium* and *Erica Tetralix*, it remains at maturity. Again, neither sporules nor pollen ever have the slightest apparent organic connexion with the parent plant,—a most remarkable coincidence, and a fact which has never been insisted on as a distinguishing character between sporules and seeds."—502.

The effects produced by the application of sulphuric acid to the sporules are next described; "the same phenomena occur as when it is applied to pollen." The author in a foot-note recommends this acid as "a valuable agent in the analysis of the peristomes of mosses," and thus concludes his valuable letter:—

"Lastly, to complete the analogy, the sporules of mosses and of some other tribes commence their germination by the emission of the internal lining membrane in the form of a tube, which is exactly analogous to the pollen-tubes. In the mosses these tubes increase by the addition of a series of fresh tubes at their extremities, and at length a bud containing the rudiments of stem, leaves and roots is formed, which may be considered analogous to the embryo or young bud in the seed of the more highly organized plants."—506.

The beautifully engraved illustrations which accompany the paper, comprise figures of *Cedipodium Griffithianum*, both of the natural size and magnified, and highly magnified views of the sporules in various stages of development, of the theca, and other parts of that moss; and also figures exhibiting the effects of sulphuric acid on the sporules of *Gymnostomum truncatulum*, *Orthotrichum striatum*, and *Jungermannia complanata*.

(To be continued).

ART. XXIII.—*Varieties; Original and Select.*

21. *Cnicus Forsteri* I saw growing by hundreds last month in a piece of marshy ground formerly part of Ditton Common; at least it was the plant I previously found near Weybridge and sent to Sir W. Hooker. It was growing with various numbers of flowers from one up to four, each on a separate and generally a long stalk. On comparing it with the books both English and foreign, and especially with Decandolle's description of his *Cirsium anglicum* (our *Cnicus pratensis*), I have little doubt that it is merely a variety of that, and that *C. Forsteri*, as you suggested, has no existence as a species.—*J. S. Mill; Kensington, July 13, 1841.*

22. *Note on British Lycopodia.* From what I read in "The Phytologist" I am led to infer that any notice of fresh localities of our British Lycopodia, (especially in the Midland Counties, where these plants are comparatively rare), may not be entirely without interest. Three out of our six native species I have formerly found on Coleshill Heath (especially near Coleshill Pool), Warwickshire; viz. *Lycopodium Selago*, *clavatum* and *inundatum*;—all however, seem now to have disappeared; at least no one of the three have I been able to meet with at the above station for some years past. Many years ago, when quite a boy, and in company with my father, I remember to have seen a single plant of *Lyc. Selago* growing in the bog below the pool. This was the only specimen I ever saw, or heard of being found, in the neighbourhood; and as we gathered it, thinking it a prize, I suppose we put a finishing stroke to its existence in that situation. *Lyc. clavatum* was met with in some abundance. People knowing nothing of Botany were struck with the beauty of the plant, and used to gather long strings of it, hanging them in festoons round their looking-glasses and picture-frames, to adorn their rooms. I have failed to meet with the plant in its old quarters for some years, and I attribute its non-appearance to the growth of young plantations, the trees of which have overshadowed the ground, and in great measure destroyed the vegetation beneath. For the non-appearance now-a-days of *Lyc. inundatum* I am at a loss to account, because the parts where it grew (the shores of Coleshill pool), remain much in the same state as formerly, and would seem to be peculiarly suitable to the growth of the plant, being always moist, and occasionally overflowed. But after repeated searches in the very spots where it used to grow plentifully, I have for some years past failed to find it. A like fate, I may add, (though the fact has nothing to do with Botany), seems to have befallen the beautiful little *Polyommatus Argus* in the above district. We used to take it in great abundance: indeed, as a boy, I was more familiar with this species than with the common *Pol. Alexis*; but now we cannot find a single specimen. True it is Coleshill Heath has been greatly curtailed by inclosures and cultivation since the days I have alluded to; still however, considerable tracts yet remain *in statu quo*: the dryer parts purpled over with the three common kinds of heath, the bogs a sheet of gold in their season with the blossoms of *Narthecium*, and abounding with *Oxycoccus*, *Comarum*, *Eriophorum*, *Meyanthes*, &c., &c., but no *Polyommatus Argus*, no *Lycopodium inundatum*, so far as recent researches can discover.—*W. T. Bree; * Allesley Rectory, August 12, 1841.*

23. *New British Narcissus?* I have now for some years cultivated in the garden a very handsome daffodil, which was found wild by a friend of mine, near Tenby in Pembrokeshire, and is quite distinct from any other British *Narcissus* that I am acquainted with. The late Mr. Haworth, to whom I sent it in 1830, considered it new

* In a letter to E. Newman.

to Britain, and recorded it in the 'Philosophical Magazine' under the name of *Ajax lobularis*. It is a highly ornamental species, a free flowerer, and increases readily. I think it may fairly be considered a native plant, (unless, indeed, it should be held to have been introduced by the Romans), for it is not likely that it should have been the outcast of a garden, being, as I believe, so little, if at all, known in the gardens, till of late years distributed by me among various private friends and public institutions, to all of whom it appears to have been previously unknown. The plant comes true from seed; the seedlings which I have raised differing very slightly, if at all, from the parent.—*Id.*

24. *Lilium Martagon*. This plant occurs in tolerable plenty near the village of Sampford, in this county [Essex], on the road from Great Bardfield to Walden. This locality was pointed out to me last May, by my relative Mr. R. M. Smith of Great Bardfield, who has known of it for above twenty years. The spot is a high bank, sprinkled with low bushes, on the side of a lane leading from the village eastward to some unexplored part of the county. From the situation I cannot at all suppose that the plant can be an escape from any garden. When I visited the spot there were a considerable number of plants, chiefly growing on the outsides of the clumps of bushes, but sometimes quite out in the grass. I do not see any mention of this locality in Ray's list of the rare plants of Essex, in Camden's *Britannia*, edit. 1695.—*Edward Doubleday*; *Epping*, August 12, 1841.

25. *Lilium Martagon*. I think I never shall forget the extreme pleasure I experienced when, in 1826, I first saw this beautiful plant growing in a little coppice to the right of the lane leading from Mickleham to Headley, in Surrey. The coppice was overshadowed by oak trees of considerable size, and the underwood had been cut during the previous year, so that the tall racemes of the lily stood up nobly and conspicuously above the brushwood, and it would have been difficult for any passing observer not to have noticed them.—*Edward Newman*; *August 13, 1841*.

[At the end of June, 1840, in a delightful excursion which we believe some of the party will not soon forget, we had the gratification of seeing *Lilium Martagon* growing in the greatest profusion in the station last mentioned. In some parts of the coppice the plants were so crowded that the flowers produced a perfect blaze of the richest colour among the young trees.—*Ed.*]

26. *Note on British Orchidaceæ*. From the commencement of the Birmingham Garden we have cultivated, with tolerable success, such of the British Orchidaceæ as we could obtain, and have preserved some species for several years without being obliged to procure a fresh supply from their native places of growth. They are grown in pots placed with our alpine plants; and about six years ago I was agreeably surprised at seeing some self-sown seedlings in several of the pots with the alpine plants, some of them being very small, and evidently seedlings of that year, others were much stronger. Of plants so obtained we have flowered several fine specimens every season for the last three years; some of them were permitted to flower where they came up, others were transplanted singly into pots, and all flowered equally well. They mostly are to be found with such alpine plants as have leaves covering the pots in winter in a living state, so as to ward off a portion of the rain, or in pots where the plants have a mass of roots to answer the same purpose, by absorption of the superabundant moisture. The species which have flowered from self-sown plants are *Gymnadenia conopsea*, *Orchis maculata* and *O. latifolia*,—the latter species being most abundant. As far as I can ascertain they flower the third year after their appearance in a seedling state.—*David Cameron*; *Botanic Garden, Birmingham, August 15, 1841*.

27. *Lycopodium clavatum* grows freely with us in a peat bed in a shaded situation, and appears as manageable as many other plants. Those who intend to cultivate it should, upon obtaining plants from their native habitat on the moors, put them into light sandy peat, and place the pots in a shaded situation until well rooted, when they may be turned out, with the balls entire, into a favourable situation, where they will require little further care or attention, except putting a little peat over some of the running stems to encourage them to make fresh roots.—*Id.*

28. *Lycopodium Selago* may also be grown in the same way as *Lyc. clavatum*, but does better in pots kept in a cool frame, or under a hand-glass, during the winter at least; it is also a plant well adapted for growing in the house, in a glass jar or glass case. Slugs are very fond of this species, and when once they commence will soon devour the whole plant if not sought out and destroyed.—*Id.*

29. *Dianthus plumarius* and *Dia. Caryophyllus*. The *Dianthus plumarius* from Ludlow Castle and *D. Caryophyllus* from Rochester Castle, cultivated together, besides the very satisfactory specific distinction presented by the different division of the petals and the serratures on the margins of the leaves, &c., have a different period for flowering; the flowers of *D. plumarius* appearing in June, while *D. Caryophyllus* only commences flowering at the latter end of July, and is now, in the middle of August, in perfection; the first corresponds in time of flowering with the garden pink, while the latter agrees with that of the carnation.—*Id.*

30. *Cibotium Barometz*, J. Smith. This interesting fern, which produced one fertile frond in the autumn of 1839, and of which a description by Mr. Westcott was read before the Linnean Society, February 18, 1840, has one fertile frond upon it this season. By some means or other a mistake has crept into the report of Mr. Westcott's description of this fern in the 'Proceedings of the Linnean Society,' Feb. 18, 1840, which perhaps had better be corrected. The passage I allude to is the following.—"Mr. Westcott is however in possession of a specimen of a fern collected in Mexico by Mr. Ross, which closely resembles the plant of the gardens, and should they prove to be identical, all doubt will be removed as to the claims of the present plant to be regarded as the *Barometz* of Linnæus, which is a native of China." The true state of the case is this. For want of a work containing the description of *Cibotium*, Mr. Westcott thought that in our fern he had detected a new genus; and he also found, among a lot of dried ferns from Mexico, a mutilated frond of a fern which would belong to the same genus, (this has since been tolerably well ascertained to be *Cibotium Scheidei*, *Chamisso*); and it was the *genus* he meant that had a wide range, extending from China to Mexico, but not the *species*, *C. Barometz*. Whether our plant really be the *Barometz* of Linnæus cannot be cleared up, as we are unable to trace out its native country; we however never had any reason for supposing it to be from America.—*Id.*

31. *Impatiens fulva*. From what I have heard of the circumstances under which *Impatiens fulva* occurs in the localities given in the last No. of the *Phytologist* (p. 40), I should hardly consider it entitled to a place in the British Flora. I have not visited the spot myself; but I learn from my friend Mr. Jenner, who is pretty well acquainted with the neighbourhood, that the plant is scarcely to be found on the banks of the stream above Albury. It is cultivated in the Albury gardens, whence the seeds are most probably carried down by the stream and deposited on its banks, where they vegetate, and the plant soon becomes established, its range being extended still lower in the same manner: it even occurs on the banks of the Thames, below the con-

fluence of the Wey. This *Impatiens* is also cultivated in Mr. Goulburn's gardens at Betchworth; and about a fortnight ago Mr. Henness and myself found plants of it growing on the banks of the Mole near Brockham, (below the gardens). I have no doubt that in a few years it will be carried down to Burford Bridge, and perhaps farther, and establish itself on the banks of the Mole as it has on the banks of the Wey near Albury.—*W. Hanson; Reigate, August 16, 1841.*

32. *Additional Guildford Stations.* Since the publication of the list of Guildford plants in the last number of 'The Phytologist,' *Fumaria claviculata* has been refound in its old locality, Martha's Chapel, and likewise on the extensive common near Shalford, called Blackheath. *Epipactis latifolia* has been found at the Sheepleas, and *Cuscuta Europæa* in an osier holt by the river Wey, a short distance above Guildford, entwined round nettles, the *Spiræa Ulmaria*, and the osiers themselves.—*J. S. Mill; Kensington, August 24, 1841.*

33. *Seeds of Aponogeton.* I write for the purpose of describing to you a rather singular phenomenon which I observed yesterday while committing to the water some seeds of the *Aponogeton distachyon*, and which you will probably have it in your power to notice. On their touching the surface, some of the seeds instantly began to move in starts and whirls, and had every appearance of living insects. On close observation I found that a considerable force (how produced is a mystery) was exerted to throw off what remained, after I had rubbed them, of the pithy matter from the pod which still adhered to them. As soon as they had rid themselves of this they sank. This is one of the most curious things I have ever seen.—*G. S. M. in Gardeners' Chronicle, August 7, 1841.*

ART. XXIV.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

August 6.—D. Cooper, Esq., in the chair. Various donations to the Library, Herbarium and Museum, were announced. The Rev. George Munford exhibited specimens of *Aspidium cristatum*, collected by him at Bawsey Heath, near Lynn, Norfolk. Dr. John Lhotaky presented some interesting specimens of Australian woods. The following Papers were read:—"On the Botany of Western Norfolk," by The Rev. G. Munford. The geography of plants is of much interest to the botanist, and every attempt to promote the knowledge of this branch of the science is worthy of observation. It is now universally admitted that the geological character of every district exercises very great influence over its vegetation. By a reference to Woodward's Geological Map of Norfolk, published in 1833, it will be seen that proceeding eastward from Lynn, which is situated on the alluvium, we meet with a narrow strip of the Kimmeridge clay and oolite that runs in a direction north and south nearly the entire length of the district. This is followed by a much wider portion of the Carstone, running in the same direction; and parallel with this lies about the same quantity of chalk marl. The indentation of the eastern side of the district extends into the hard and medial chalk, but embraces only a small portion of the latter, towards the north. The Paper concluded with a very copious list of habitats. "On the differential characters of *Dianthus Caryophyllus* and *Dianthus plumarius*," by Mr. T. Sansom. "Descriptions of New *Algae*, by Mr. Herring of Stuttgart," collected by Dr. Ferdinand Krauss during his travels, at Natal, South Africa. The paper was accompanied by a series of the specimens described. "On the supposed luminosity of *Schistostega pennata*," by The Rev. C. A. Johns, F.L.S. The author concludes that the plant is not itself phosphorescent, and that whatever light was reflected came *not* from the globular cells of the plant, but from the globules of fluid resting upon it. A similar fact was also observed in two species of *Jungermannia*. It appears however to be confined to those Cryptogamic plants with reticulated leaves. Mr. S. P. Woodward exhibited two rhizomas of *Aspidium Filix-mas*; one showing the spiral arrangement of the rachides, and on the other (and on the little pieces accompanying it) buds were developed. Near the bases of some of the rachides which appear in some instances, Mr. W. had seen to produce fronds yearly, till they became rhizomas in their turn, an inch or two long. This mode of development is common in Foreign genera, but Mr. W. was not aware of its having been mentioned as occurring in any of the British ferns.—*G. E. D.*

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ART. XXV.—*A History of the British Lycopodia, and allied Genera.*
By EDWARD NEWMAN. (Continued from page 51).



THE PRICKLY CLUB-MOSS.

LYCOPODIUM SELAGINOIDES of Authors.

LOCALITIES.

- England. Cumberland, Durham, Yorkshire, Lancashire and Westmoreland, in numerous localities; *Dr. Balfour*, *Mr. Simpson*, *Miss Beever* and others. Derbyshire; Kinder Scout, *Mr. O. Sims*, (T. & D).
- Wales. Caernarvonshire; Snowdon, Glyder Vawr, &c., *Mr. Janson*. Merionethshire; Cader Idris. Montgomeryshire; Plinlymmon.
- Scotland. Falls of the Clyde and shores of Loch Long, *Mr. Kippist*. Loch Brandy, Auchtermore, Sidlaw Hills, Ben-na-Bourde, Braemar, near Brechin, Clova, Ochils, near Dollar, and near Killin; *Drs. Greville* and *Balfour*, *Mr. Campbell*, *Mr. Graham* and *Mr. W. Gardiner, jun.*
- Ireland. Sandy ravines near the sea; counties Donegal, Londonderry, Dublin, Kerry, Wicklow, &c.; *Messrs. Mackay* and *Moore*. Near Belfast, *Mr. Woods*.

THIS species, which, without much reason, has obtained the name of the Prickly Club-Moss, is widely distributed over the hilly districts of the North of England, Wales, Scotland and Ireland. I have found it in every part of the Snowdon range that I have visited; also on Cader Idris, in the Western Highlands of Scotland, and on Errigal and other elevations in the County Donegal: and my correspondents have kindly supplied me with such a host of habitats, that I am compelled to limit the number given, on account of the space which the whole would occupy. It delights in the vicinity of those little rills so common in all our hilly counties, and whose course is so often marked by a sinuous line of vivid green, delighting the heart of the botanist, and leading him on from crag to crag, regardless of the crumbling debris and detached masses of stone which in such spots too often give way beneath his tread, and leap with awful bounds down the hill-side, till they find a new resting-place in the abyss below. On such localities has this interesting little plant fixed for its home, and here it may ever be found, the companion of saxifrages and the rarer ferns.

Lycopodium Selaginoides was well known to Ray, who considered it generically distinct from all the other British *Lycopodia*,* in which Dillenius appears to agree with him.† The figure‡ by Dillenius is not inaccurate, but wants that elegance which is so characteristic of the majority of his figures: the other figures of our earlier botanists convey little or no idea of the characters of the plant.

The roots are extremely slender, thread-like and fragile; they take but a slight hold on the crumbling soil in which this species is usually found.

The stem is procumbent, very slender, weak, repeatedly branched, the branches short and somewhat sinuous: the seed-bearing spikes are thrown up at intervals, generally two or three on each plant; they are subclavate and considerably thicker than the prostrate stem.

The entire plant is clothed with lanceolate leaves, which are serrated and almost jagged at their edges; those on the procumbent slender portions of the stem are shorter, narrower and somewhat scattered, while those on the spike, more properly termed bracts, are every way larger and much broader at the base.

The thecæ are sessile at the base of the bracts, pale yellow and tolerably round; the upper ones contain the usual minute pollen-like particles which have already been spoken of as the seeds of *Lycopodium clavatum*, used under the name of '*plawn*' for the production

* Synopsis, 106.

† Hist. Musc. 460.

‡ Id. tab. 68.

of flashes of light ; the lower ones contain larger grains, equal in size to the seed of many phænogamous plants. This double mode of fructification has excited the admiration of botanists from the earliest period, and given rise to a variety of conjectures ; some have contended that both the large and small grains are productive seeds, others that the smaller bodies are true seeds, the large ones gemmæ or buds ; others that the smaller are abortive and the larger productive seeds ; and others again that the larger ones only are seed, the smaller ones being grains of pollen.

Wahlenberg* has given a very clear and accurate description of this twofold fructification. He observes that the capsules containing the graniform seeds are subquadrilocular, in reality bivalve, but sometimes dehiscing in four directions ; they occupy the lower portion of the spike, and are larger and more protuberant than those above. The seeds are always four in number, and are so squeezed and pressed together that three triangular areas are produced at the base of each ; in this particular they so much resemble the seeds of *Isoetes lacustris*, that, agreeing as the plants do in so many other respects, it is hardly possible to doubt their being closely related. The seeds are nearly as large as those of the poppy, and invariably fall from the capsule entire and are scattered upon the earth, a circumstance quite conclusive against their being anthers, as suggested by Hedwig. Capsules filled with the powdery seed common to the other Lycopodia and the bivalved ferns, occur in the axils of the upper bracts ; this powder consists of somewhat hirsute granules, four of which are combined in a tetrahedron, exactly like the seeds in the lower capsules, exhibiting a very obvious analogy between the two kinds of seed, and leaving no doubt of their having the same origin. If therefore the powder emitted from the capsules of *Botrychium Lunaria* be true seed, it follows that the powder produced by the capsules of *Lycopodium Selaginoides* is seed also. It cannot be male pollen, its appearance being precisely synchronous with that of the mature seeds. The spike itself is annual, decaying immediately after it has fruited in July or the beginning of August, and the next year a new spike springs from some other part of the prostrate stem, on no part of which can a trace of future capsules be found. From these circumstances it seems probable that the only difference between the granules is that of size, each being to be regarded as true seed ; a somewhat analogous discrepancy occurs in the varied form of the seeds of spinach. EDWARD NEWMAN.

(To be continued).

* Flora Lapponica, 292.

ART. XXVI. — *Localities of some of the rarer Plants found in the vicinity of Bristol.* By THOS. B. FLOWER, Esq., F.L.S.

Few places perhaps present a more fruitful field for botanical research than the vicinity of Bristol; and thinking a notice of some of the more interesting plants may be acceptable, I have drawn up the following list of such as I have had the pleasure of detecting during numerous botanical excursions in that neighbourhood.

- Ranunculus parviflorus.* Sparingly in the lane leading to Baptist Mills; and on St. Vincent's Rocks.
- *circinatus.* Frequent in many places about Bristol and Stapleton.
- Helleborus viridis.* This plant is by no means frequent in the neighbourhood. I have found it sparingly in the Roman encampment in Leigh woods.
- *fatidus.* Woods near Stoke, and in woods between Braston and Backwell.
- Aquilegia vulgaris.* On the Down near Cook's Folly, also in Leigh woods.
- Glacium luteum.* Frequent in many places about Portishead.
- Fumaria capreolata.* Stapleton and Crew's Hole in plenty.
- Barbarea præcox.* About Long Ashton, Bourton and Backwell.
- ✓ *Arabis stricta.* The numerous stations given for this rare plant have been nearly destroyed within the last two or three years; rewards having been offered for it by an individual, in order to render it scarce.
- Cardamine impatiens.* Frequent in many places about Stapleton Mills.
- Glyce maritima.* On rocks about Clevedon, but by no means common.
- Hutchinsia petræa.* St. Vincent's Rocks in plenty, and also at Choram's Chair, near Blaize Castle.
- Hesperis matronalis.* Long Ashton, but by no means frequent.
- Lepidium rudemale.* St. Vincent's Rocks; and plentiful in many places about Bristol.
- Diplotaxis tenuifolia.* About Horfield and St. Philip's, sparingly.
- *muralis.* Frequent about St. Vincent's Rocks, and in many places about Bristol.
- Cerastium tetrandrum.* Frequent on the Downs.
- Saponaria officinalis.* Frequent about Crew's Hole and Hanham.
- Androsæmum officinale.* In the woods under Cook's Folly, and Leigh woods, sparingly.
- Hypericum montanum.* St. Vincent's Rocks.
- *dubium.* St. Vincent's Rocks and Leigh woods.
- *pulchrum.* On the Downs near Clifton turnpike, in plenty.
- Geranium sanguineum.* Plentiful on St. Vincent's Rocks and in Leigh woods.
- Erodium moschatum.* St. Vincent's Rocks; also about Peupole Point in plenty.
- *maritimum.* Leigh down, also at Peupole Point.
- Montia fontana.* Brandon Hill near Bristol, and also at Stapleton.
- Sedum Telephium.* St. Vincent's Rocks.
- *dasyphyllum.* On walls about Belle Vue, Clifton; and also at Bedminster.
- *album.* "About Frenchay," Mr. Rootsey.
- *rupestre.* St. Vincent's Rocks, but no doubt introduced originally.
- Ulex nanus.* In plenty on the downs. This is the plant observed by some of the mem^{rs}

bers of the British Association during their meeting in this city, and suspected by them to be *Ulex provincialis*, which is a small, erect, glabrous, much-branched plant, and, as I have been informed, quite distinct from the present species.

Lathyrus Aphaca. Corn-fields near Westbury, in plenty; and at Bedminster.

—— *Nissolia*. In great plenty below Shirehampton, in the marshes. "In the lane leading to St. Anne's wood," Mr. Rootsey.

—— *sylvestris*. In plenty in the wood by the side of the Avon, near Shirehampton.

Vicia bithynica. Plentiful in the last locality.

Hippocrepis comosa. In the road leading to the Giant's Hole on St. Vincent's Rocks, and behind the old hot-well house.

Trifolium subterraneum. In plenty on Brandon Hill near Bristol.

—— *medium*. In the woods below Cook's Folly.

—— *scabrum*. St. Vincent's Rocks.

× ——— *maritimum*. In the large meadow below Cook's Folly, in plenty.

—— *fragiferum*. By the side of the river Avon in many places; also in the meadows below Shirehampton in profusion.

× ——— *resupinatum*. Meadows below Shirehampton, Mr. Drummond. This plant is, I fear, entirely lost by drainage and cultivation. In the summer of 1838 I was unable to detect it; and again in July, 1839, when in company with C. C. Babington, Esq.

Lotus tenuis.

Medicago maculata. By the side of the Avon near Cook's Folly; also near Kingroad.

Ornithopus perpusillus. Brandon Hill, plentifully.

Cerasus Padus. St. Anne's Wood.

Potentilla verna. St. Vincent's Rocks, plentifully.

× *Pyrus pinnatifida*. Leigh woods.

—— *Aria* and *terminalis*. St. Vincent's Rocks.

Geum rivale. Near Nailsea in plenty.

Epilobium roseum. About Crew's Hole and Hanham, sparingly.

Enanthe fistulosa. Ditches below Shirehampton, in the lane leading to Kingroad.

—— *pimpinelloides*. By the river side under Cook's Folly.

Bupleurum tenuissimum. By the river Avon near Cook's Folly, and at Sea Mills.

Trinia glaberrima. St. Vincent's Rocks, also on the rocks near Cook's Folly.

Petroselinum segetum. Sea Mills.

Smyrniolus Olusatrum. St. Vincent's Rocks.

Galium tricornis. Corn-fields near Horfield.

Rubia peregrina. Frequent in this neighbourhood, especially about St. Vincent's Rocks.

Dipsacus pilosus. Leigh woods.

Sambucus Ebulus. Near Sea Mills.

× *Inula Helenium*. Portishead.

Artemisia maritima. Frequent about Kingroad.

Achillaea Ptarmica. Bedminster, sparingly.

Bidens cernua. Stapleton Mills, in company with *B. tripartita*; also at Hanham.

Orcis pyramidalis. Frequent about Cook's Folly woods.

Ophrys muscifera. Sparingly in Leigh woods. The station given for it in the 'New Botanist's Guide' has long since been destroyed.

—— *apifera*. In the greatest abundance about the rock house near Cook's Folly.

Neottia Nidus-avis. Leigh woods.

- Neottia spiralis*. On the down opposite the Zoological Gardens, in plenty.
Epipactis latifolia. Leigh woods, and St. Anne's wood, near Brislington.
Habenaria chlorantha. Frequent in Leigh woods, also in the woods below Cook's Folly. I am not aware that *H. bifolia* has been found in this neighbourhood.
Galanthus nivalis, Sea Mills; also near St. Anne's wood.
Convallaria Polygonatum. Leigh woods, in company with *C. majalis*.
Fritillaria Meleagris. In meadows at Bitton, but seldom flowering.
Asparagus officinalis. Opposite Cook's Folly, on the Leigh wood side of the river.
Myosotis collina. Frequent on the downs.
 ——— *cæspitosa*. Watery places near Kingroad.
Gentiana Amarella. On the Leigh wood side of the river Avon.
Glauz maritima. Frequent between the hot wells and Shirehampton, on both sides of the river.
 x *Veronica hybrida*. St. Vincent's Rocks in plenty.
 ——— *montana*. Frequent in St. Anne's wood near Brislington.
 ——— *Buxbaumii*. In cultivated places about Bristol, but sparingly.
Orobanche major. In the woods below Cook's Folly.
Lathræa squamaria. Leigh woods, but sparingly.
Lamium maculatum. Naturalized at the back of the garden wall at Redland Court.
Quercus sessiliflora. Leigh woods.
Hydrocharis Morsus-ranæ. Plentiful in the ditches at Kingroad.
Allium ———? Sparingly by the side of the river Avon near Sea Mills.
Gagea lutea. St. Anne's wood, sparingly.
Ornithogalum pyrenaicum. St. Anne's wood; also about Hanham, by the river side.
Butomus umbellatus. Crew's hole.
 x *Carex digitata*. Leigh woods, sparingly.
 ——— *clandestina*. St. Vincent's Rocks; also on the rocks on the Leigh side of the river.
Rottböllia incurvata. Frequent by the side of the Avon under Cook's Folly; also at Sea Mills.
Hordeum maritimum. Frequent about Kingroad.
Poa maritima, *procumbens* and *distans*. Frequent about Rownham Ferry.
Bromus diandrus. Plentiful in many places between the hot wells and Sea Mills.
 ——— *secalinus*. Below Cook's Folly.
Grammitis Ceterach. On old walls in the neighbourhood.
Blechnum boreale. Frequent in Leigh woods.
Polypodium Dryopteris. Leigh woods, sparingly.
Cystopteris fragilis. Frequent about Dundry.
Aspidium aculeatum. Leigh woods; also at St. Anne's wood and at Hanham.
 ——— *lobatum*. Leigh woods, and woods about Shirehampton.
 ——— *Oreopteris*. Sparingly in Leigh woods.
 ——— *dilatatum*. Leigh woods, Shirehampton and Hanham.
Asplenium marinum. Portishead and Clevedon.
 ——— *Adiantum-nigrum*. Frequent on the walls in the neighbourhood.
 ——— *Filix-femina*. Leigh woods.
Ophioglossum vulgatum. Leigh woods.

THOS. B. FLOWER.

ART. XXVII.—*Analytical Notice of the 'Transactions of the Linnean Society of London,' vol. xviii. pt. 4. August, 1841.*

(Continued from p. 60).

ART. XXXII. — *Notice of a Plant which produces perfect Seeds without any apparent Action of Pollen* By MR. JOHN SMITH, A.L.S.

THIS curious and interesting member of the Euphorbiaceæ, to which Mr. Smith has assigned the name of *Cælebogyne ilicifolia*, is a native of Moreton Bay, on the east coast of New Holland, whence three plants were sent to the Royal Botanic Garden at Kew, in 1829, by Mr. Allan Cunningham, who was unable to determine the natural order to which it belonged, not having seen either flowers or fruit. Mr. Brown also "collected specimens of this plant, but equally without fructification, at Keppel Bay, on the same coast, in 1802." Under cultivation the plants retain their *scrubby* habit, and have much the appearance of dwarf holly-bushes.

"Shortly after their introduction the plants produced female flowers, an examination of which proved the genus to be Euphorbiaceous, and allied to *Sapium*: but although I have watched them carefully from year to year, I have been unsuccessful in detecting anything like male flowers or pollen bearing organs; and I should naturally have passed them over as dioecious, and considered the three introduced individuals as females, had not my attention been particularly directed to them in consequence of each of them producing fruit and perfect seeds, from which I succeeded in raising young plants. This, too, was not the result of one year, but of several successive years' sowing: the plant now exhibited to the Society was raised last year, and the similarity of the offspring to the parent would alone lead me to conclude that it is not the result of cross-fecundation. The circumstances connected with the situation of the plant in the garden, and the absence of allied male plants, as also the peculiarity of the natural order to which it belongs, which do not readily hybridize, led me to believe that no foreign pollen had fecundated the ovarium; and on watching the progress of the stigma all doubts were removed. * * I have already said that the stigma consists of three connate lobes, which are more or less notched; at first the lobes are depressed on the ovarium, but as the ovarium swells they lose their reddish colour and become inclined upwards, retaining their succulent and healthy appearance till dried up by the ripening of the fruit: the surface has a granular appearance, derived from minute papillæ, and showing no signs of having been acted on by pollen. Spiral vessels occur in the thick part of the base of the stigma, and are doubtless connected with the vascular tissue of the ovarium. I have seen nothing like pollen-tubes. The stigmatic surface remaining so long unchanged affords a strong proof of its not having been acted upon by pollen, it being well known that the stigma of many plants remains for a long time unaltered, but soon after the application of pollen a change takes place, as is readily seen in Orchidæ.

"On considering the circumstances above noticed, and in particular the absence of

male flowers of the plant itself or of others related to it, and the fact of the stigma remaining so long unchanged, and not exhibiting the symptoms usually seen in stigmas after having been acted upon by pollen, I can arrive,—especially after the length of time during which I have watched it,—at no other conclusion than that pollen is not essential to the perfecting its seeds; but if an external agent be necessary, and really act upon the stigma, I am unable to say what that agent is or how it acts. I might mention a view which I at one time entertained, namely, that the viscid fluid which issues from the glands situated below the ovarium might produce some effect by exciting the action of the pistillum; and this view received some support from finding the young stigma often smeared with the fluid. That there is some specific action on the ovula I think there can be no doubt; for, as in most other plants, some of the ovula are frequently abortive.

“My object being merely to state the facts observed respecting this plant, without the intention of advancing any opinion on the various theories of vegetable impregnation, I shall conclude by merely observing, that the absence of pollen in this instance is irreconcilable with the theory that every grain of pollen furnishes a germ, and that the ovulum is merely a matrix to receive and nourish it till it becomes a perfect seed.”

(To be continued).

ART. XXVIII. — *Notice of ‘A History of British Forest Trees, Indigenous and Introduced.’* By PRIDEAUX JOHN SELBY, F.L.S., M.W.S., &c. London: John Van Voorst. Parts 2 and 3. August and September, 1841.

THE second part of this elegant work contains portraits and descriptions of four trees;—the wild cherry, the whitethorn, the mountain ash and the common ash. Mr. Selby considers the cherry well worth cultivating as an ornamental tree, principally on account of the profusion of its flowers at an early period of the year, and the rich purple tints of its foliage in the autumn. The whitethorn, or quickset as we term it, is more apt to be regarded as the staple commodity of our trim English hedges than as a forest tree; still, Mr. Selby has selected so noble a specimen as an illustration of the species, that it reminds us of a figure we have somewhere seen of the gigantic ‘chestnut of a hundred horse’ long celebrated by travellers. The rowan, that familiar tree, is represented more in accordance with our ideas of its magnitude.

“The mountain ash grows in almost every district of Britain, but its favourite habitats and where it reaches its greatest size and most imposing appearance, are mountainous declivities, or in those deep dells in mountainous and hilly districts, where the earth is loose and free, and kept in that moist state most congenial to its growth, by the percolation of the rain and dews, or of springs which issue from the disrupted rocks. In such localities it frequently becomes a tree of the second or third magni-

tude, with a form generally devoid of that stiffness and round-topped outline it usually assumes under cultivation, or as seen in dressed and garden grounds. In old trees situated in such wild scenery, the branches lose their formal appearance, and as they become elongated and unable to sustain the annually increasing weight of the foliage, gradually yield and take a partially pendant direction. Such are many of those groups which claimed the approving notice of Gilpin, and which we have oft admired in the wild and enchanting scenery of the Scottish Highlands; and such were the old and venerable trees in our own romantic dene at Twizell, before the destructive storms of the last few winters overthrew and laid low the leafy honours of the largest and finest among them. In addition to a light and graceful foliage, charming us with its fresh and lively tint, the mountain ash, in spring, bears conspicuous and sweet-smelling corymbs of cream-white flowers, and as the autumn advances, its berries, of the richest coral hue, give it a singularly pleasing and beautiful effect;—

“How clung the Rowan to the rock
And through the foliage showed his head
With narrow leaves and berries red;—”

and add to the contrast produced by its mixture with the deep green of the pine, and the tufted and waving foliage of the spiry birch, two of the usual and most predominating trees in those localities in which it most delights. It is not, however, to be despised, or its cultivation neglected, in scenery of a tamer and less stirring description, and, loaded with its rich and glowing fruit, it is one of the greatest ornaments to the pleasure gardens of suburban villas.” p. 77.

The third part contains the English elm, the cork-barked elm, the wych elm, the smooth-leaved wych elm, and the common walnut. A figure of some noble specimen of each tree accompanies the description, which is always very complete, giving the history, appearance, mode of culture, uses, and every other particular that can interest the enquirer.

The work abounds in useful hints to planters, and practical observations on the effect produced by the propinquity of other trees. Of the ash the author observes it is best planted without admixture of other trees, as from its mode of growth it proves one of the worst of neighbours in mixed plantations, particularly to the oak, which it lashes and destroys by its heavy and easily swayed head. On the other hand the cherry is strongly recommended to the planter's notice, both on account of its value for underwood and as a timber tree, and particularly as being—

“one of the few trees that can be advantageously planted as a nurse or subsidiary to the oak, as it is neither apt to overtop or crush its neighbours by a rampant growth or wide spreading head like the wych elm or the ash, or to hurt and injure them in winds and storms, as is constantly the case where trees with a more flexible or easily agitated spray are introduced. It has also this further recommendation as a nurse to the oak, that, although a quick growing plant while young, and fulfilling the duty of a protector, it naturally yields to the tree it has fostered after the first twenty or thirty years of its growth, and is afterwards content to vegetate beneath its shade, rendering

it even as a mere neighbour the least dangerous to oaks in cases of neglect, or where regular thinning has not been duly administered."—p. 61.

We are gratified in observing that the words "Indigenous and Introduced" have been inserted in the title on the wrappers of the parts before us, in accordance with a suggestion in our notice of the first part of this work.

ART. XXIX.—*Varieties.*

34. *Polypodium calcareum* and *Dryopteris*. I consider these plants to be quite distinct, the former having truly the erect habit which Smith describes; I believe also that the pubescence is constantly present in *P. calcareum*. The two species are generally found in different habitats, but in a wood on the side of Ingleborough, as you go to Weathercote, they are found in company. I have cultivated them side by side for many years, with their respective characters unchanged. — *W. Wilson*; * *Warrington*, July 5, 1841.

35. *Woodsia Ilvensis* and *hyperborea*. I have never had the slightest difficulty in distinguishing these plants, the first by its ovate, the second by its oblong pinnæ. *Woodsia Ilvensis* was found by me many years ago near Llyn y Cwn, and by no one else in modern times, but those whom I have directed to the spot. I believe however it is the "*Filix Alpina*, *Pedicularis rubræ foliis subtus villosis*" of Ray (Syn. 118), although I must confess I have only seen *Woodsia hyperborea* on Clogwyn y Garnedd, the habitat recorded by Ray.—*Id.* July 5, 1841. In a short visit to the Snowdon district last month, I found a few plants of *W. Ilvensis* in the old locality, but they appeared weak and dwindling for want of sufficient earth.—*Id.* September, 1841.

36. *Botanical Excursion to Teesdale*. Having arrived at Middleton, in Teesdale, Durham, a little before 12 o'clock on the 21st of August, 1838, after taking some refreshment I set off for Langdon beck, cheered by sun-gleams, which had suddenly succeeded heavy clouds and rain. I reached my destination at 2, and secured, as a guide, the landlord of the unpretending little public-house, on whose pony we crossed the deeply swollen beck, our first obstacle in progressing to Widdy-bank and Caldron Snout, (incorrectly given Spout by Francis and Hooker). And here allow me to hint to botanists who may visit this place, in search of plants the locality of which is simply given as Widdy-bank, to take a guide as they desire success in their search, since Widdy-bank is a tract of country extending about three miles square, and thus a very indistinct description for the locality of a small plant. We had not proceeded far when we found *Bartsia alpina* in great abundance, principally either young plants or in seed; I was however fortunate enough to secure three in flower. A little farther on, and extending over a large space, was *Tofieldia palustris* in seed. We then saw many plants of *Gentiana verna*, not far from the side of the river; and, mounting higher ground, discovered one tuft of *Carex pulicaris*. The remainder of our way, until we reached the Snout, was unproductive. There, growing out of the crevices of the rock on the Durham side, were *Festuca vivipara* and *Polypodium Phegopteris* in great luxuriance. We crossed the stream by its narrow bridge, into the county of Westmoreland, but dared not extend our ramble, in consequence of the threatening aspect of

* In a letter to E. Newman.

newly accumulated clouds, so that I considered myself amply rewarded by finding *Oniscus heterophyllus*, *Habenaria viidii* and *Gentiana campestris*. Recrossing the bridge we pursued the course of the stream, which, almost immediately below the Snout, takes a sudden turn, and thus we found our track hemmed in by the over-laden Tees on our right hand, and the lofty basaltic rocks called Falcon Clints on our left. My eye was now anxiously directed to the face of these rocks, to discover, if possible, the chief object in taking our present course—*Woodsia Ilvensis*. Rain now began to fall heavily, and the wind, which had been all day very tempestuous, bore it against us so as to render observation, either of locality or objects, very imperfect. However, after tracing as near as I can judge about 400 yards, I espied some small specks of green through the broken fragments of a stream which poured over the Clints, and under which I soon stood, pulling hastily the patches I had seen, and these, to my delight, proved to be two small plants of the *Woodsia*, mixed with a few fronds of *Asplenium viride* and *Cistopteris fragilis*. The state of the weather, for by this time the rain had penetrated a Mackintosh cape, rendered all further search impracticable; we therefore retraced our path as quickly as possible to our starting-point, having picked up as we proceeded *Sedum villosum*, *Lycopodium Selago* and *Selaginoides*, *Galium boreale* and *Solidago Virgaurea*, all of which were growing in great profusion. On the following day I went in the opposite direction, into Baldersdale, to gather *Saxifraga Hirculus*; and here again I provided myself with a guide, a requisite in search of a plant which is confined in its growth to a very limited area. It grows on the surface of a very lofty and exposed hill to the south of the Balder, at the exact point of its junction with the Black beck. The storm of wind and rain was violent as yesterday, and I was once more completely "wetted to skin," even through another Mackintosh cape: but I do not complain; I found the plant in great plenty and luxuriance, growing among moss, and where I had to stand at least six inches deep in water whilst I gathered it. The storm again prevented further search, or any advance lower down the beck for the purpose of gathering *Epilobium angustifolium*, which grows there. Yet let it not be supposed that the wettings were not counterbalanced, when *Woodsia Ilvensis* and *Saxifraga Hirculus* were in the scale against them. — *Samuel Simpson; Lancaster, Aug. 19, 1841.*

37. *Avena alpina* found in Yorkshire. Whilst on a visit to a friend near Settle a fortnight since, Mr. J. Tatham took me to a hill above that town to gather *Avena alpina*, which had been discovered there for the first time a few weeks previously, by himself; and in the evening of the same day I discovered it in a hazel wood, a little northward of Stackhouse near Settle, in great abundance. I mention this, thinking it may be interesting to know that this almost exclusively Scottish plant has a habitat in Yorkshire. I believe it was not known to Mr. Baines as having been found in that county.—*Id. August 25, 1841.*

38. *Asplenium lanceolatum*. It affords me pleasure to be able to communicate what I am sure will be interesting to you, viz., a locality for the rare *Asplenium lanceolatum*, not mentioned in Mr. Newman's delightful little work on the ferns. Mr. J. W. Ewing, of Norwich, who resided here for some time a few years ago, discovered the plant growing on a bank at Stapleton, about three miles from Bristol, and pointed out the spot to me. Not paying much attention to the ferns at that time, the circumstance escaped from my memory, until reminded of it by a friend who was with us at the time. I have recently revisited the spot and again found the plant, but growing there very sparingly; however, by searching very diligently, day after day, the rocks in the

immediate neighbourhood, I discovered it in one or two other places, and in one of these abundantly, covering the dry surface of a rock completely sheltered from rain, and, though its roots are almost exposed and a slight pull detaches it from the rock, it grows in the greatest luxuriance, one frond which I gathered measuring eighteen inches in length. I have observed in all the fronds of this fern which I have gathered, that the rachis is throughout its entire length furnished with linear scales, a character which best distinguishes it in all its forms, and even in its very young state, from *Asplenium Adiantum-nigrum*. — *G. H. K. Thwaites*; 2, *Kingsdown Parade, Bristol, August 31, 1841*.

39. *Lilium Martagon*. In addition to your stations for *Lilium Martagon*, I may mention Ash, near Wrotham, Kent, where it grows plentifully in a very wild situation on an estate belonging to Mr. Gladdish.—*N. B. Ward*; *Wellclose Square, September 1, 1841*.

40. *Anagallis arvensis* and *cærulea*. I have this season been able to preserve two fine plants of *Anagallis cærulea* on the spot where those raised from your Reigate seeds stood some years ago; they are spreading on the ground with some stems more than two feet long. *Anagallis arvensis* has also been preserved close by, with stems nearly as long; both keep to their colours. I have often endeavoured to find some satisfactory specific distinction between these plants, but can discover none that would enable a person to distinguish them when not in flower. The *cærulea* is still the most robust plant, as formerly, and has larger leaves, with the veins more prominent on the back than in *arvensis*, the points of the shoots too are inclined to be somewhat erect, until borne down by their own weight as they advance in growth. The corollas are finely lacinated, as in the plants raised from the original seeds. Perhaps the stalked glands on the margin of the corolla of *arvensis* would be the best distinguishing character, if the plants are to be considered two species. The points of the shoots of *arvensis* have not the same tendency to ascend as those of *cærulea*. — *David Cameron*; *Botanic Garden, Birmingham, September 3, 1831*.

[The seeds of *Anagallis cærulea* from which Mr. Cameron's first plants were raised, we had the pleasure of collecting near Reigate, in July, 1836. They were immediately forwarded to Birmingham, and plants with the blue lacinated corolla have annually sprung up in the same spot ever since that time; nor, we believe, has *A. arvensis* once made its appearance among them, but has kept its own station close by. We may perhaps, at some future time, lay before our readers all the evidence we can collect at all bearing on the question of the specific identity or distinctness of the two plants: in the mean time we should be obliged by the communication of any facts relating to the point at issue. It should perhaps be mentioned that we have never heard of *Anagallis cærulea* being found wild near Birmingham.—*Ed.*]

41. *Ulex strictus*, or *Irish Furze*. Did I ever mention having saved seeds of the *Ulex strictus*, or *Irish Furze*, in 1839, which were sown under glass in the spring of last year, and the seedlings transplanted out of doors in autumn? Of eight plants so obtained there is not the least deviation in the appearance from that of the parent; which, although no decided proof of the plant being a genuine species, would go far to make me conjecture that it is so.—*Id.*; *Sept. 17, 1841*.

[*Ulex strictus*, Mackay, 'Cat. Irish Plants,' p. 67. is recorded in the 4th edition of Hooker's 'British Flora,' as *U. Europæus*, var. β . *minor*. It is extremely different in appearance from *U. Europæus*, and we cannot help thinking them specifically distinct. The *Ulices* do not appear to be well understood.—*Ed.*]

42. *Enquiry relating to the Plates of Leighton's 'Flora of Shropshire.'* I beg to enquire, through the medium of 'The Phytologist,' which of the nineteen plates in Leighton's Flora has either figures or sections of the fruit or appendages of any of the six following species of *Carex* described in the 4th vol. of Smith's 'English Flora,' &c. &c.; viz., *C. angustifolia*, *Mielichhoferi*, *speirostachya*, *stictocarpa*, *tenella* and *ustulata*?—*Saml. Gibson; Hebden Bridge, September 7, 1841.*

[Our correspondent will find figures and a section of the fruit of *Carex ustulata*, on the right hand side of plate 16, p. 461, of the Shropshire Flora; the other five *Carices* enquired after, and which are described as species in the 'English Flora,' are not now considered to be entitled to that rank. We are decided enemies to the multiplication of species on insufficient grounds; and have long been of opinion that at least the *Carex stictocarpa* and *angustifolia* of 'English Flora,' possessed but weak claims to the rank assigned to them by the author. Sir W. J. Hooker was unacquainted with both when the earlier editions of his 'British Flora' appeared; and in the 4th edition of that work *stictocarpa* appears as a synonyme of Hudson's *C. recurva*, and *angustifolia* bears the same relation to *C. caespitosa*, Linn. Of the plant described in 'English Flora' as the *Carex tenella* of Schkuhr, Sir W. Hooker asks in the earlier editions of his Flora, "May it not be a starved state of the following?" (*C. remota*); he subsequently appears to have had reason for believing this conjecture to be well founded, for in the 4th edition of that work, we find *C. tenella* sunk into a synonyme of *C. remota*, Linn. A like fate has befallen the two remaining *Carices*, respecting whose whereabouts our correspondent enquires. The facts of the histories of the plants described in 'English Flora' as the *Carex Mielichhoferi* of Willdenow and *C. speirostachya*, Swartz, seem to have been somehow or other confounded in such a manner that it would now perhaps be difficult to unravel the mystery; suffice it to say that in the last edition of the 'British Flora,' the latter has been referred to *C. fulva*, Good., as a variety, and the name of the former appears as a synonyme of *C. phæostachya*, Sm. And even of *C. phæostachya* itself Sir W. Hooker remarks, "In deference to the opinion of Mr. Borrer, I rank this as a species; but it is probably only a variety of *C. panicæ*, with less glaucous (greener) herbage and a bifid beak to the fruit. The above synonymes are referred hither at the suggestion of Dr. Boott." This gentleman has for several years past made the *Carices* his particular study; and Sir W. J. Hooker expresses his acknowledgments to him "for many valuable remarks and improvements both in the arrangement and definition" of the *Carices*, for the fourth edition of the 'British Flora.'

While on a subject connected with Mr. Leighton's 'Flora of Shropshire,' we embrace the opportunity of laying before our readers the following complete list of species and varieties new to the British Flora, described in that work. The list may be regarded as a supplement to the 'Catalogue of British Plants' printed for the Botanical Society of Edinburgh.—*Ed.*]

<i>Viola imberbis</i> , <i>Leight.</i>	<i>Cerasus austera</i> , <i>Leight.</i>
<i>Chenopodium intermedium</i> , <i>Mert. & Koch.</i>	<i>Pyrus Malus</i> , <i>Linn.</i>
<i>Cuscuta Epilinum</i> , <i>Weihe?</i>	<i>a. sylvestris</i> , <i>Leight.</i>
<i>Dianthus plumarius</i> , <i>Linn.</i>	<i>β. sativa</i> , <i>Leight.</i>
<i>Oxalis Acetosella</i> , <i>Linn. β. purpurea.</i>	<i>Rubus affinis</i> , <i>W. & N.</i>
<i>Spergula vulgaris</i> , <i>Bönningh.</i>	<i>β. W. & N.</i>
<i>Reseda alba</i> , <i>Linn.</i>	<i>γ. W. & N.</i>

- Rubus rhamnifolius*, *W. & N.*
 α. *rhamnifolius*, *W. & N. Lind. & Bor.*
 β. *rhamnifolius*, *W. & N. and Lindl.*
 (*corylifolius*, *Sm.*) *Borr.*
Rubus discolor, *W. & N.*
 — *vulgaris*, *W. & N.*
 — *villicaulis*, *Köhl.*
 — *Leightoni*, *Lees' MS.*
 — *echinatus*, *Lindl.*
 — *Schleicheri*, *W. & N.*
 — *dametorum*, *W. & N.*
Ranunculus fluitans, *Lam.*
 — *acris*, *Linn. β. minor*, *Leight.*
 — *aquatilis*, *Linn.*
 γ. *tripartitus*, *Leight.*
Ballota ruderalis, *Fries.*
 (*B. nigra*, *Linn. Fl. Suec.*)
 — *fetida*, *Lam.*
 (*B. nigra*, *Linn. Sp. Pl.*)
 β. *alba*.
 (*B. alba*, *Linn. Sp. Pl.*)
Galeopsis Ladanum, *Linn. β. Sm. Eng. Fl.*
Stachys palustris, *Linn.*
 β. *intermedia*, *Leight.*
Cardamine sylvatica, *Link.*
Sinapis arvensis, *Linn.*
 α. *vera*, *Bab.*
 β. *retro-hirsuta*, *Bab.*
Malva vulgaris, *Trag.*
 (*M. rotundifolia*, *Auct. non Linn.*)
Fumaria, *n. sp.?*
Trifolium striatum, *Linn.*
 β. *erectum*, *Leight.*
- Lotus major*, *Scop.*
 α. *vulgaris*, *Bab.*
 β. *glabriusculus*, *Bab.*
Hypericum tetrapterum, *Fries.*
 — *maculatum*, *Crantz.*
 (*H. delphinense*, *Vill. et Reich.*)
Tragopogon minor, *Fries.*
Hypochaeris glabra, *Linn.*
 α. *vera*, *Bab.*
 β. *Rabisi*, *Bab.*
Hieracium boreale, *Fries.*
Senecio erucæfolius, *Huds.*
 — *erraticus*, *Bertol.*
Orchis majalis, *Reich.*
Epipactis viridiflora, *Reich.*
Callitriche pedunculata, *DC.*
 α. *vera*, *Bab.*
 β. *sessilis*, *Bab.*
 — *platycarpa*, *Knz.*
Carex flava, *Linn. β. polystachya*, *Koch.*
 — *hirta*, *Linn. β. Sm. Eng. Fl.*
Littorella lacustris, *Linn.*
 β. *hirsutus*, *Leight.*
Myriophyllum alterniflorum, *DC.*
Quercus intermedia, *Don.*
Betula alba, *Linn.*
 β. *pendula*, *Sm.*
 γ. *salax*, *Leight.*
 δ. *pubescens*, *Leight.*
Taxus baccata, *Linn.*
 β. *Dovastoniana*, *Leight.*
Atriplex deltoidea, *Bab.*

43. *Yellow-flowered Variety of Gentiana Amarella.* A few weeks back I found on Betchworth Hill, near the noted clump of trees, a yellow-flowering gentian, apparently a variety of *Gentiana Amarella*. I found two or three specimens nearly in the same place about four years since.—*Jno. R. Henness ; Betchworth, Surrey, Sept. 12, 1841.*

[We possess a specimen of *Gentiana Amarella* with yellow flowers found last year on Betchworth Hill; it is a very pretty variety.—*Ed.*]

44. *Plants at Nottingham.* If the following short notice of plants found in the vicinity of Nottingham, in August, 1841, is likely to be interesting to any of the readers of the 'Phytologist,' it is quite at your service.—*Joseph Sidebotham ; 26, York Street, Manchester, September 14, 1841.*

Hippuris vulgaris.

Crocus nudiflorus. Nottingham meadows.

Brachypodium pinnatum.

Gentiana Amarella.

Foeniculum vulgare.

Parnassia palustris.

Silene nutans. Common on rocks. Since the burning of Nottingham Castle, this plant has completely overspread the ruins.

<i>Clematis Vitalba.</i>		<i>Hypericum montanum.</i>
<i>Cheiranthus fruticosus.</i> Nottingham		<i>Gnaphalium rectum, uliginosum, mini-</i>
Castle-rock.		<i>mum and Germanicum.</i>
<i>Geranium pratense.</i> Meadows near the		<i>Erigeron acre.</i> Mapperly Hills.
Trent.		<i>Sagittaria sagittifolia.</i>
<i>Lathyrus sylvestris.</i>		<i>Bryonia dioica.</i>
<i>Vicia sylvatica.</i> Oxton Forest, in the		<i>Grammitis Ceterach.</i>
greatest profusion.		<i>Aspidium Thelypteris.</i>
<i>Ervum tetraspermum.</i>		——— <i>cristatum.</i> Oxton bogs, very local
<i>Ornithopus perpusillus.</i>		——— <i>spinulosum.</i>
<i>Trifolium fragiferum.</i> Banks of the Trent		<i>Asplenium Trichomanes & Ruta-muraria.</i>
near Wilford Ferry.		——— <i>Adiantum-nigrum.</i> Common
<i>Medicago maculata.</i>		on rocks in Nottingham Park.

45. *Drosera rotundifolia*, β . *ramosa*, (Phyt. p. 23). This pretty variety grows in great plenty, together with the usual state of the plant, on Carrington Moss, Cheshire, seven miles south of Manchester. The same individual often bears simple and compound racemes, as mentioned by Mr. Leighton. There does not appear to be any difference sufficient to form a specific distinction. All three species of *Drosera* grow within seven miles of Manchester; *D. longifolia* being found on Baguley Moor, and *D. Anglica* abundantly in various localities.—*Leopold H. Grindon*; 4, *Portland Street, Manchester, September 15, 1841.*

46. *Orobanche barbata*, (p. 29). This species is found upon St. Vincent's Rocks, near Bristol, where I had opportunities for examining it several years in succession. It grows chiefly upon the ledge under the suspension bridge, and is always parasitic upon ivy. The *O. minor*, which I consider perfectly distinct, I have gathered in clover fields, between Clevedon and Walton, Somersetshire, twelve miles S.W. of Bristol. It also springs up occasionally on a steep grassy bank overhanging the sea, growing intermixed with *Anthyllis vulneraria*, *Chlora perfoliata*, *Orchis pyramidalis*, &c., and exposed to the spray of every tide.—*Id.*

47. *Tilia*, (p. 44). I think it is in the 'Mag. Nat. Hist.' that there are some remarks by Mr. Edwin Lees on the legitimate claim of the lime-tree to be considered British. Worcestershire and Herefordshire are the counties named as those wherein it is found most truly wild. I can add Leigh Woods, Somersetshire, to the list of localities. On the craggy precipitous sides of Nightingale Valley are several fine specimens, with every circumstance in their favour as being of spontaneous growth. I should like to see an article in 'The Phytologist' on the right of this tree to be reckoned an "ancient Briton."—*Id.*

48. *Lycopodium*. Anything in reference to this genus will be interesting, I presume. Four of the six species grow near Manchester, but neither of them in any quantity. On a wild desolate moor called Fo-edge, about fifteen miles north, *L. clavatum*, *Selago* and *alpinum* are found within a few yards of each other, together with a vast profusion of *Allosorus crispus*, which flourishes there in extraordinary beauty. *L. inundatum* is plentiful on Baguley Moor, a spot of much celebrity among Manchester botanists. In addition to the three *Droseras*, the following plants are produced there:—

<i>Veronica scutellata</i>	<i>Eleogiton fluitans</i>	<i>Radiola Millegrana</i>
<i>Eleocharis cæspitosa</i>	<i>Eriophorum angustifolium</i>	<i>Anagallis tenella</i>

Rhamnus Frangula	Alistna ranunculoides	Littorella lacustris
Menyanthes trifoliata	Spergula nodosa	Osmunda regalis
Gentiana Pneumonanthe	Aquilegia vulgaris	Chara translucens
Sium inundatum	Polygala vulgaris, <i>alba</i>	— <i>flexilis</i> .— <i>Id.</i>
Erica Tetralix	Myriophyllum spicatum	

49. *Spurless Variety of Dog Violet.* We have lately received specimens of a form of *Viola canina*, in which the flowers are said to be always destitute of a spur; thus assuming a regular figure. It has been found abundantly in Bedfordshire, by Mrs. Gye, a correspondent of Dr. Daubeney. Thus, in the violets, we have on the one hand this return to a regular type, and on the other, a complete state of irregularity in those instances, observed in *V. rothomagensis*, *hirta*, and others, in which the petals have each a spur. This lady's violet is at this season of the year apetalous—a frequent occurrence in *V. mirabilis*, *montana*, and many others; including the common sweet violet.—*Gardeners' Chronicle*, September 11, 1841.

50. *Neglected Garden in Jamaica.* At Cold-spring estate (4378 feet above the sea), once the seat of the Wallens family spoken of by Bryan Edwards, we found the remains of a garden, in which European and tropical vegetation were strangely blended together, and where the plants and trees of both worlds seemed equally to luxuriate. The fences leading to it were garnished with the white rose and the (*Rosa*) *multiflora*; strawberry plants in fruit and flower carpeted the ground: the Guernsey lily, the *Agapanthus*, the beautiful *Begonia* and the columbine, were the wild flowers of the region. Here we saw the English oak and Spanish chestnut spreading their noble branches, and almost under their shade the tea-plant and coffee-tree were in full flower. On one side of the garden was a *Magnolia* tree, of two trunks rising from a single stem, each trunk about 14 inches in diameter, and a little farther on, on the mountain slopes, large copses of the English furze and broom, rich with yellow, affording a retreat for the quail and partridge. Our horses browsed on strawberry-leaves as on common grass: the fruit is small but refreshing, and sells for 1s. a quart in Kingston market. Near this strange spot the apple-tree was in bearing, and we saw artichokes, carrots, cabbages, green peas and parsneps. St. Catherine's top was 600 feet above us, encircled by mountain mist, and the clouds were rolling in dense masses below us: it was a strange and wonderful scene, and we hardly knew how to admire it enough.—*John Candler's Journal*; Part 2, Jamaica.

51. *Meyen's Pflanzengeographie.* Mr. Al. Irvine has been for some years engaged in the translation of Meyen's work on the Geography of Plants. In a future number we hope to lay before our readers some extracts from our respected correspondent's translation.—*Ed.*

ART. XXX.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

September 3.—John Edward Gray, Esq., F.R.S., president, in the chair. The following donations were announced:—Numerous specimens of *Aspidium cristatum*, from the Rev. George Munford, collected by him at Bawsey Heath, near Lynn, Norfolk. Specimens of Australian woods, from Dr. John Lhotaky. British plants, from the Rev. Andrew Bloxam, Mr. S. Warner, Mr. S. P. Woodward, and Miss Anne Woraley. 138 species of British mosses, from the secretary, collected by Mr. W. Gardener, Jun., of Dundee. Books, from the secretary, Mr. Woodward, and Mr. W. G. Perry. Lieut. James Tilley, R.N. presented specimens of the elm leaf from their opening in April to their attainment of summer perfection, and thence through their falling changes to the end of decay. Mr. John Reynolds, treasurer, communicated a paper "On the Development of various parts in Plants," translated from a paper by Professor Meyen.—*G. E. D.*

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PRICE 6D.

ART. XXXI.—*A History of the British Lycopodia and allied Genera.*

By EDWARD NEWMAN. (Continued from page 67).



THE FIR CLUB-MOSS.

LYCOPODIUM SELAGO of Authors.

LOCALITIES.

England.	}	In all our mountain districts.
Wales.		
Scotland.		
Ireland.		

THE Fir Club-Moss, next to the common Club-moss, is the most abundant of our British species; it is however almost exclusively confined to alpine districts, growing on bare and bleak mountain slopes, or occasionally rooted in the fissures of rocks. I found it abundantly in the Western Highlands of Scotland, and have received specimens or records of habitats from my kind correspondents at Edinburgh, showing it to be a plant of general occurrence among the Scottish hills; and Mr. C. C. Babington informs me he found it in August last in Harris and North Uist, two of the outer Hebrides. From the North of England I have also received a variety of habitats, far too numerous to detail; and in North Wales it is abundant on the ranges of which Snowdon, Cader Idris and Plinlymmon are the more notorious summits. In the midland and southern counties of England we find it more sparingly distributed. I have specimens before me from the Titterstone Clee Hill, Shropshire, found by Mr. Cameron; from Moseley Common, Worcestershire, by Mr. Luxford; from Felthorpe Bog, Norfolk, by Mr. Wigham; from Leith Hill, Surrey, and Tilgate Forest, Sussex, by Mr. J. A. Brewer; and from Woking Common, by Mr. D. Cooper: Mr. C. C. Babington has found it also on Waldron Down, Sussex. It is said to grow in Derbyshire, Oxfordshire and Devonshire, but I have not seen examples from these counties.

On the Welsh mountains I have observed that only a portion of the plants appear to be in a thriving and healthy condition; the larger ones almost invariably being loaded with fructification, and exhibiting symptoms of incipient decay. With the exception of Dillenius I think no author has noticed this peculiarity; and this learned writer rationally concludes that each plant exists for a definite term and then dies.* Whether the term of its existence be biennial, triennial, or longer, I leave for future observers to decide; but I have not the slightest doubt that its existence has a fixed term, as suggested by the great muscologist.

* Quam ante 14 annos montes Cambriae plantarum gratia peragrarem, Augusti fine, plures plantae semiaridae et quaedam mortuae mihi visae sunt, cum initio hujus mensis omnes virent; id vero tam in majoribus quam in mediae magnitudinis plantis mihi observatum. Ex quo singulas aliquot annos durare et postea interire conjicio. Dill. 'Hist. Musc.' 436.

The figures of this plant can scarcely fail of being characteristic, its appearance is so different from that of our other species: Dillenius figures several varieties, all of them very expressive of its distinguishing features. These varieties appear to be the result of locality: when last at the Birmingham Botanic Garden, Mr. Cameron called my attention to some living specimens which he had himself collected on the Titterstone Clee Hill; in these the lower leaves were considerably narrower and somewhat reflexed, and the plants (as indeed do all from the same locality) exhibited a uniform although scarcely describable difference from those of Scotland, the North of England, and Caernarvonshire; and these again differ from the specimens collected in Norfolk, Sussex and Surrey, which are also of uniform appearance, of much smaller size, and have the branches obtusely pointed rather than flat-topped. When rooted in the fissure of a rock it occasionally assumes a pendulous character, the branches being very long and their extremities recurved; in this state the whole appearance of the plant is graceful and elegant, and totally dissimilar to its normal form; such specimens I have found on the rocks in the Pass of Llanberis, and my brother has lately procured a fine example on the ascent of Plinlymmon. Mr. Babington in a note to me observes, "I have a curious specimen which was growing under a rock near Llanberis, in which the stems are prostrate and about a foot in length, and the leaves less densely placed than is usual in the species."

This species has received credit for many extraordinary medical properties; I shall record only a few of these. In the 'Flora Prusica' it is recommended as a specific for ruptures, bruises, &c. Breyanius asserts that a decoction of it destroys the lice which infest man; and Linneus informs us that the Swedes employ it to kill those of swine and cattle. Schwenckenfeldius says that is used by countrymen as a cathartic and emetic; and Linneus, on the authority of Rothman, adds that it is sold, though not commonly, in the chemists' shops of Sweden, under the name of "*muscus catharticus*," and is prescribed in the form of a decoction as an emetic; but remarks that the dose must be very weak, otherwise it is likely to produce convulsions. Lightfoot says that it is taken by the Highlanders both as a cathartic and emetic, but unless used in small quantities it induces giddiness and convulsions; he also informs us that in the island of Raasay, near Skye, and in some other places, it is used instead of alum, to fix colours in dying woollen cloths.

The roots are numerous, tough, wiry, tortuous, and often divided. They are emitted from divers parts of the stem, always however where

it is in contact with the earth. The plant in its normal form appears to be perfectly erect, but its hold on the ground being apparently insufficient for the maintenance of this position, it generally becomes partially recumbent, as represented in the figure. This change takes place as soon as the plant has risen above the stunted herbage with which it is commonly surrounded, and has thus subjected itself to the action of the violent winds that seem to be almost incessantly sweeping the mountain-sides.

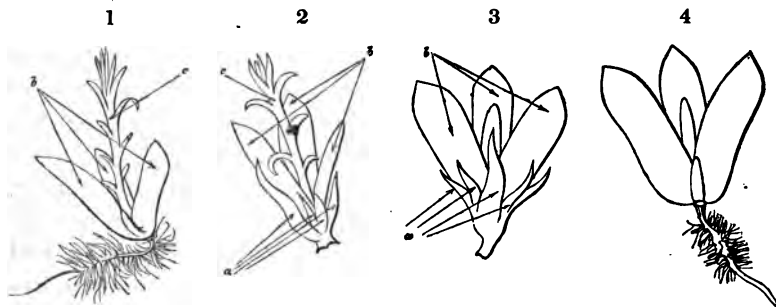
The stems are repeatedly dichotomous, stout, rigid, somewhat flat-topped, and usually erect.

Every part of the plant is densely clothed with rigid, lanceolate, acute, entire leaves, much resembling those of *Lycopodium annotinum*. At the upper extremity of each branch a portion of these leaves become transformed into irregular 6-cleft calyces or cups,



very closely resembling the perichætia of mosses; the outermost lobe of the six which compose this cup is longer and larger than the rest, and of the pair on each side one is generally incumbent on the other, so as nearly to conceal it; this was overlooked by Lightfoot, who, in speaking of the cup, describes it as consisting of "four stiff, lanceolate, incurved, minute leaves." This perichætial cup is shown in the margin, and also at *a a*, in figures 2 and 3 of the cut below. Lightfoot, in continuing his description,

goes on to say, "at the bottom of this calyx are five small pellucid substances resembling leaves, which are supposed to be analogous to pistils, these in time grow up into three large broad leaves, two united together like the hoof of an ox, &c." I have only examined these parts when in the mature state. Instead of terming the interior pro-



cesses *leaves*, I should be inclined to say that within each perichætial cup already described, is situated a kind of flattened gemma or bud,

consisting of five distinct lobes or component parts, combined at the base; the three inner lobes are large, prominent and conspicuous, even to the naked eye, (*b* in figures 1, 2 and 3); the two outer lobes are very small, and may easily be overlooked, one of them is closely appressed to the anterior, the other to the posterior surface of the bud.* These buds, which have no representatives in either of the previously-described British species of *Lycopodium*, are truly the germs of future plants, as each, when mature, is detached from its perichæatial socket with the slightest touch, falls to the earth, and germinates with the greatest readiness: figure 4 represents a bud thus germinating; it is drawn from a specimen found in a state of nature. From the under surface of what may be termed the collum or neck of the bud, is protruded a single stout root, at first very pilose, but soon becoming smoother; and in the centre of the three large lobes appears what might readily be mistaken for a sixth and central lobe, but which is, in reality, the undeveloped stem or ascending axis of the young plant. This part is very observable in figures 3 and 4, in the centre of each figure. As germination advances this axis gradually becomes elongated upwards by the successive unfolding of the leaves, which are spirally arranged round it. The stem in this advanced state is shown at *c c*, in figures 1 and 2. When the leaves first unfold at the apex of the stem they are erect, but soon assume a spreading direction, and finally become reflexed.

Whether these buds remain attached to the parent plant or fall to the ground, their germination proceeds in the same manner; for when grown in a closed glass case, a situation which precludes the action of wind and rain, and therefore lessens the chance of their being dislodged, the buds germinate *in situ*, giving to the extremity of each branch a bushy and very remarkable appearance. A single bud thus growing in its perichæatial socket is shown at figure 2. A plant from the Titterstone Clee Hill, cultivated by Mr. Luxford in a closed glass, died during the second year, leaving green and vigorous young ones growing on the parent stem. Some of the gemmæ were accidentally detached when the specimen was planted in the glass about twelve months ago; these have vegetated on the surface of the soil and produced young plants, one of which is now more than an inch high.

It appears to me that by these gemmæ the plant is so abundantly

* Dillenius was the first to notice these gemmæ. "Eodem tempore observavi per ramos præsertim superiora versus e foliorum alis, corpuscula cristata, crebra rigida e sex laciniis inæqualibus composita." 'Hist. Musc.' 436.

propagated in a state of nature, and not by its seeds. In a paper by Sir J. E. Smith, printed in the 'Transactions of the Linnean Society,' Mr. Joseph Fox, of Norwich, is said to have raised young plants of *Lycopodium Selago* from seed. The record of these experiments appears to me very unsatisfactory, as no detail is given, and I am quite inclined to suppose that the gemmæ were mistaken by that industrious individual for the seeds; if so, his observations have been verified by many subsequent cultivators.*

I have already stated that the perichætal leaves and their buds occur near the extremities of the branches; below them, and in the axils of the ordinary leaves, are produced the true thecæ, each ultimate branch being alike fertile throughout the greater part of its length. The thecæ are sessile, large, yellow, reniform and bivalve; their dehiscence is rectilinear and longitudinal, but rarely takes place in a state of nature. In every plant that I have examined while living, the thecæ have been firmly closed; by pressure however they may be compelled to open, when they are found to



be filled with minute yellow seeds. A detached leaf with its axillary theca is represented in the margin.

The *Lycopodia* of Britain being now enumerated, I think it best to state in answer to some direct enquiries and for the information of botanists generally, that this little monograph will not be reprinted in a separate form. I think it due to the subscribers to 'The Phytologist' to give them this assurance. I take this opportunity of returning my best thanks to those botanists who have so kindly assisted me in the genus *Lycopodium*, and of soliciting information respecting *Isoetes* and *Pilularia*. Among the specimens of *Isoetes* which I have seen, there appear two constant varieties, unaltered by locality or season; they grow side by side in the lakes of Caernarvonshire. Any information tending to prove that these are or are not species, will be very thankfully received. In order to allow time for communications on these genera, I shall not describe either of them in the December number of 'The Phytologist.'

EDWARD NEWMAN.

* The passage referred to is as follows:—"Mr. Joseph Fox, a journeyman weaver of Norwich, * * * showed me in the year 1779 young plants of "*Lycopodium Selago*," raised from seed in his own garden." 'Lin. Trans.' ii. 315.

ART. XXXII.—*List of Plants growing about Settle, Yorkshire.*

BY JOHN TATHAM, JUN. ESQ.

Settle, 10th mo. 16th., 1841.

Respected Friend,

Annexed is a list of plants either seen or gathered lately by myself in the neighbourhood of Settle; shouldst thou think it worthy to be inserted in 'The Phytologist,' thou art quite at liberty to do so.

I remain respectfully,

JOHN TATHAM, JUN.

-
- Thalictrum minus*. On our alpine limestone hills.
Trollius europæus. Abundant in various localities.
Helleborus viridis and *fætidus*. Rather scarce, in two localities.
Aquilegia vulgaris. Common in our woods.
 x *Actæa spicata*. Abundant on Ingleborough, Gordale and Hesleden Gill.
Papaver dubium. Common about Settle.
 — *Cambricum*. Sparingly on our river bank and at Feizor.
Draba incana. Abundant on our hills.
 x — *muralis*. Plentiful about Malham.
Thlaspi alpestre. Very common on our hills.
 x *Cardamine impatiens*. Abundant in Crow-nest Wood.
 x *Barbarea præcox*. Scarce, in the lane leading to Langcliffe.
 x *Hesperis matronalis*. A few plants to be seen occasionally about Settle.
Viola hirta. Very abundant in most of our woods.
 — *lutea*, α and β . On all our hills.
Geranium phæum. Very scarce.
 — *sylvaticum*. Common.
Sedum Telephium. In Winskill Wood, abundant.
 — *villosum*. Common on our moors.
 — *reflexum*. On the rocks above Settle.
Saxifraga granulata and *hypnoides*. Very abundant on our hills.
 — *oppositifolia*. On the east side of Pennyghent.
 — *umbrosa*. In Heselden Gill.
Rhamnus catharticus and *Euonymus europæus*. Abundant in our natural woods.
Hippocrepis comosa. On our limestone cliffs.
Rubus chamæmorus. On Fountains Fell.
 — *saxatilis*. Common in our woods.
 x *Potentilla verna*. In Kelkhow Wood.
 — *alpestris*. Near Peter's Castle, Silverdale.
 x *Dryas octopetala*. Covering acres of ground on Arncliffe Cloulder.
Rosa Doniana. In Helk's Wood.
 — *Borreri*. Brakenbrow, near Settle.
 — *Forsteri*. Sparingly in our hedges.
Ribes alpinum. In Stainforth Wood.
 — *petraum*. Limestone rocks above Gordale, and other places.
Epilobium angustifolium. Rocks above Gordale.

- Anthriscus sylvestris*. In our rich meadows.
Silene pratensis, *Pimpinella magna* and *Myrrhis odorata*. Common near Settle.
Galium boreale. Rocks about Gordale.
 ——— *pusillum*. On all our limestone rocks.
 ——— *Mollugo*. Common about Settle.
- ✓ *Senecio sarracenicus*. At Ingleton.
Cnicus heterophyllus. Abundant in our boggy woods.
Hieracium murorum, var. *maculatum*. Under Giggleswick Scarr.
Symphytum tuberosum and *officinale*. Both rather scarce.
Lithospermum officinale. On our Limestone cliffs.
Anchusa sempervirens. In several places near Settle.
Polemonium caeruleum. Abundant about Malham and the hills above Settle. The white variety occurs below Weathercoat Cave.
- ✕ *Ligustrum vulgare*. Abundant on our limestone cliffs.
 ✓ *Primula elatior*. In our woods.
 ✓ ——— *farinosa*. In very great profusion in the pastures above Settle.
Mentha rubra. Banks of the river about the Willow Islands.
 ✕ *Daphne Mezereum* and *Laureola*. In the woods at Feizor.
Polygonum viviparum. In the pastures about Feizor.
 ✓ *Quercus sessiliflora*. Common in our woods.
Juniperus communis. In the alpine woods about Wharfe.
Taxus baccata. On our limestone cliffs.
Listera cordata. On the Rye-loaf hill.
Epipactis latifolia, β . Very abundant under Giggleswick Scarr, &c.
Habenaria alba. Abundant in Brakenbrow, Brock holes and Tarn field.
- ✓ *Allium oleraceum*. On our limestone hills.
Butomus umbellatus. In the river below Settle.
Convallaria polygonatum. On our limestone cliffs.
 ——— *multiflora*. Near Calton.
 ——— *majalis*. In most of our woods.
Blysmus compressus. Abundant about Malham.
Eriophorum polystachion and *angustifolium*. On Cockit Moss. .
 ——— *pubescens*. In the Tarn field.
Carex fulva. Abundant in the Tarn field.
 ——— *remota*, *flava*, *binervis* and *pallescens*. Common in various localities near Settle.
Elymus europæus. In Cave-hole Wood.
Phleum pratense, viviparous, two specimens obtained near the bank of the Ribble.
Aira cristata. Very common on our hills.
Melica nutans. Abundant in four localities.
Sesleria caerulea. On all our limestone rocks.
Festuca vivipara. Very abundant on Fountains Fell.
Poa rigida. Under Giggleswick Scarr.
- ✓ *Avena pubescens*, *pratensis* and *alpina*. Abundant about Settle.
Polypodium Phegopteris. In Cave-hole wood.
 ——— *calcareum*. Abundant on our hills.
Aspidium rigidum. On the rocks above Settle, at an elevation of 1500 feet.
 ——— *Lonchitis*. Sparingly in the same place.
 ——— *Oreopteris*. Abundant above Swabeck.

Cystea dentata. Very common.

— *angustata*. Scarce, in three places, viz., Gordale and Attermire Scarrs, and Catterick Force.

Asplenium viride, and the ramose variety, very common.

Grammitis Ceterach. On the rocks above Malham Tarn.

Botrychium Lunaria. Abundant in Tarn-field pasture.

ART. XXXIII. — *Varieties*.

62. *Botany of the Isle of Man*. I am anxious through your pages (for all which, yet published, I heartily thank you) to turn the attention of British botanists to a tract, small indeed in extent, but of much importance in the Geography of British plants, I mean the Isle of Man. Whether the geographical and geological relations of that island oscillate between the three neighbouring countries—England, Scotland and Ireland, as much as we know that it formerly gloried in making its politics do, I shall not stay to enquire, but proceed to the only subject with which ‘The Phytologist’ can have anything to do. It seems to me then that the Isle of Man, lying as it does with relation to England, Scotland and Ireland, should be no bad field in which to look for connecting links between the Floras of those three countries; and one or two hurried excursions made there confirm that belief. It is thirty miles West of St. Bees, the nearest point in England; sixteen miles South of Burran, the nearest in Scotland; and twenty-seven East of Strangford, which is the nearest point of Ireland: so that if mere geography, or at least geographical position, were to guide our conjectures, it would be, *a priori*, a matter of guess more than of reasoning, to which of the three the Isle of Man, in its Flora, would bear most relation. Midway between the very northern part of England and that part of Ireland where its middle parallel of latitude would cross it, and much nearer to Scotland than either, we find, first, two plants decidedly characteristic (I believe) of Ireland and the South of England; and the third and prevailing one equally characteristic of Scotland. The two former are, first, *Pinguicula lusitanica*, still to be found in bogs West of Douglas, and *Adiantum Capillus-Veneris*, *formerly* growing at Glen Maij, near Peele; while the prevailing fern of the glens throughout the Isle is *Osmunda regalis*, of which I have repeatedly gathered fronds seven and eight feet in length. The little history of *Adiantum Capillus-Veneris* as a Manx plant, is curious, and to me, who love plants for their own sake, vexatious; and illustrates what, I dare say, Mr. Newman and the author whom he quotes in his own account of *Asplenium lanceolatum*, intended by “the ravages of unprincipled botanists,” (*British Ferns*, 66). Some years ago, I think in 1835, I found this graceful fern completely roofing a small cave on the left of the glen below the waterfall at Glen Maij; and sharing with my companion the pleasure of having made this discovery (as I then thought it), I communicated it to a few brother botanists; one of whom, in return for my information, told me that it was no new discovery, for that the station was given in the ‘*Flora Scotica*’ a long while ago; so it was, as I afterwards found, and it was given on the authority of one “*Mr. Clark*.” About two years ago, when on my way home from the county of Kerry, Dr. Wood, of Cork, most obligingly showed me his ample and well-kept herbarium of British plants, where one of the first things I found was “*Adiantum Capillus-Veneris*. Glen Maij, Isle of Man,” with the date of (I think) 1809. This I took as a knock on the head to my

claim, but was glad of it still, as establishing the plant's true nativity. But now for the catastrophe: when I revisited the Glen last year for the pleasure, chiefly, of seeing this fern, I found my friends had loved it to death;—it was gone!—gone so completely that I thought I had mistaken the cave, and looked about for some other; but when I came back to look at least at the spot where I *had* seen it grow, I discovered a morsel of a frond yet clinging on: this I carefully carried home, and planted under a closed glass, where it is now growing and spreading most vigorously, but in the Isle of Man I fear it grows no more. I have one or two notices yet to offer on the plants which are found, and of some which are *not* found, in the Isle of Man: but must for the present postpone them. — *F. F. Clark; Hartshill, near Newcastle, Staffordshire, August 21, 1841.*

53. *Hymenophyllum Wilsoni* has been found here this summer, on the Old Man, where it grows on wet rocks, hidden from sight by the luxuriant growth of *Cryptogramma crispa*. In many such situations it is found, but not in great abundance. In one other situation we have found it at a comparatively low elevation, on a large moss-covered stone, standing in, but not overflowed by, a mountain stream. — *M. Beever; Coniston, near Ambleside, Sept. 20, 1841.*

54. *Lycopodium Selaginoides*. In the course of the summer I have found *Lycopodium Selaginoides* in almost all our boggy ground, generally growing in *Sphagnum*.—*Id.*

55. *Lycopodium clavatum*. One plant only grows in a field near the lake, the surface of which is peat and below it gravel. The part in which this plant grows has had the grass removed, and appears to have been burned. It was observed about two months since: there has been no appearance of fructification. The field, which is a large one, has been well looked over, but no other plant has been found.—*Id.*

56. *Lastrea rigida*. I have much pleasure in giving you an opportunity to record in the pages of your interesting periodical a Westmoreland habitat of *Lastrea rigida*, whence I supplied myself for the first time on the 15th of July, 1840. I believe the station had been known to a gentleman resident in the neighbourhood for many years, but he kept his secret close, lest the exterminating searcher should remove all traces of his valuable discovery. My knowledge of the fern arose from Miss Beever, who, in 1839, sent a few fronds for my opinion, stating her belief that they were *Lastrea rigida*, which belief Mr. Francis, to whom specimens had also been sent, fully confirmed. The fern grows sparingly on the side of a road leading from Morecambe Bay to Arnside, on the very confines of Westmoreland, and in very great abundance on the southern face of Arnside Knot, a limestone hill which rises northward from that road. Phoenix-like, it springs from the ashes of its parent, without any apparent access to nourishment but what it may receive from the decayed fronds of the preceding year, by which it is surrounded. Its tufts are very dense, each consisting of many hundred fronds, so that I cannot entertain the least fear that it should ever be eradicated. I may remark that, from its less elevated site than near Settle, hitherto the chief source, through Mr. Tatham, of supply to the botanical world, its fructification is more often perfected, and the character of the plant is more fully developed, in the Westmoreland than in the Yorkshire habitat. Nor can I avoid noticing how completely the Arnside plant stamps the correctness of the figure given in Mr. Newman's elegant and valuable History of Ferns. This may have been noticed by those who have received specimens from the Botanical Societies of either London or Edinburgh, to both which I sent several the past year and furnish more the present one.—*Samuel Simpson; Lancaster, September 29, 1841.*

57. *Gentiana Pneumonanthe* with white flowers. I send herewith a white-flowered specimen of *Gentiana Pneumonanthe*. It was gathered on the 5th of August last, at Poulton-le-Sands, near Lancaster, in the same place as that from which I stored myself in July last year, but where, I fear, ere next summer, the plough will have destroyed the hoard. The plant grew among whins, confined to an area of a very few feet, in the centre of an uncultivated piece of ground. Out of sixty specimens gathered by me this year, about twelve were white; and perhaps the white were in the same proportion to the blue ones last year, but I did not take particular notice. Their appearance in the bright sunshine was most exquisite.—*Id.*

58. *Polygonum dumetorum* grows copiously in the hedges on more than one part of the road from the Woking-Common station to Guildford.—*J. S. Mill; Kensington, October 3, 1841.*

[This is one of those odd plants which we can never expect to find in the same spot two years in succession. At least such is the case so far as we are taught by our observation of its habits in the neighbourhood of Reigate. Previously to the year 1836, when we had the good fortune to detect it, *Polygonum dumetorum* was not known as a Reigate plant; in the following year it was found in one or two other stations; from one at least of these it has entirely disappeared, but to make amends has sprung up in the greatest abundance in a locality some miles from either of those previously occupied by it. We are always glad to record the stations of such plants, wherever they may choose temporarily to take up their residence.—*Ed.*]

59. *Rarer Plants of the Isle of Wight.* I observed the following less common plants in the Isle of Wight, during a week's tour in July, some years ago.

MARITIME PLANTS.

Matthiola, (no doubt) incana, or Cheiranthus incanus, in inaccessible places on Compton Cliffs, Freshwater Bay. The same plant grows most abundantly in places overhanging the sea on the promontory of Posilipo, and other similar situations near Naples, where it flowers copiously in February, and little children collect bouquets of the plant at great apparent risk, to sell to passers by.	Cakile maritima Adenarium (Arenaria) peploides Pyrethrum maritimum (Ryde) Convolvulus Soldanella (sands near Yarmouth) Salsola Kali (Ryde) Atriplex littoralis Beta maritima Euphorbia Peplis (Sandown Bay) Arundo arenaria Triticum Nardus
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SALT MARSHES NEAR YARMOUTH.

Althæa officinalis	Salicornia herbacea
Tamarix gallica	Chenopodium maritimum

IN A MARITIME BOG AT EASTON, NEAR FRESHWATER.

Ranunculus Lingua	Scirpus maritimus
Epipactis palustris	Cladium Mariscus

MISCELLANEOUS.

Poa bulbosa. Alum Bay.

Mentha rotundifolia. This plant, so common on the continent, but comparatively so unfrequent in England, grows on the Undercliff, in a maritime situation, near Puckaster Cove.

Lathyrus sylvestris and *Rubia peregrina.* Common in hedges on the Undercliff. The former grows in profusion on the landslip near Bonchurch.

Iris fœtidissima. As common on the Undercliff, and (if I recollect right) in other parts of the island as in Devonshire.

Inula Helenium. By the side of a lane between Yarmouth and Freshwater Bay, but sparingly.

PLANTS COLLECTED SHORTLY AFTERWARDS ON THE COAST OF HAMPSHIRE, OPPOSITE TO THE ISLE OF WIGHT.

Atriplex portulacoides. Abundant in salt marshes at Lymington.

Bartsia viscosa and *Fumaria capreolata*. Roadside between Lymington and Exbury.

Euphorbia stricta. Cornfields near Beaulieu river.

Campanula hederacea. New Forest, near Ashurst Lodge.

Parnassia palustris, *Drosera longifolia* and *Myrica Gale*. In various parts of the Forest.—*J. S. Mill*.

60. *Lathræa squamaria*. I once obtained a very expressive example of the parasitical property of *Lathræa*. It was attached to a small branch of the root of a poplar, which was closely surrounded by the thick branched roots of the *Lathræa*, whose tuberous suckers penetrated the root of the poplar. The example figured by Mr. Bowman in the Linnean Transactions, is evidently derived from a young plant. In mine the suckers by which the root of the *Lathræa* attached itself, were numerous seated upon its principal divisions, not at the termination of the lesser branches merely, but wherever a point of contact between the parasite and its prey existed, there were to be found the suckers.—*W. Wilson*; Warrington, October 6, 1841.

61. *Sium nodiflorum*. I beg to forward a specimen of *Sium nodiflorum* with a remarkably long flower-stalk. The umbels of this species are commonly said to be sessile, but in this neighbourhood at least, absolute sessility is rare. — *Geo. Sparkes*; Bromley, Kent, October 11, 1841.

[The umbels of *Sium nodiflorum* are rarely, we believe, quite sessile, and we have observed the peduncle to vary much in length; in the specimen sent by our correspondent it is about as long as the umbel. The specimen appears to be a portion of a very luxuriant plant.—*Ed.*]

62. *Anagallis cœrulea*. With respect to the query at p. 76 of 'The Phytologist,' I may observe that I never found but one plant of *Anagallis cœrulea* near Bromley, and that I have in vain searched the same field for two successive years without finding another. I once met with a solitary plant at Leamington in Warwickshire. The blue in this instance had a distinct shade of violet.—*Id.*

63. *Curious Fern*. Enclosed are specimens of what I consider a very curious variety of *Athyrium Filix-fœmina*. The original plant was found in the county of Galway, Ireland, by a Mr. Smith, brother I believe to Mr. Smith, curator to the Hull Botanic Garden, where I noticed a vigorous specimen in the course of last summer. During the last two years I have had many opportunities of observing the plant in cultivation, in which state its form appears constant, although grown in a variety of soils and situations. From the great irregularity in the laciniation of the pinnæ I have experienced considerable difficulty in determining its venation, which however appears to agree with that of the normal state of the lady-fern. I have minutely examined a great number of fronds, but can discover no traces of fructification. In the herbarium of a friend I have seen specimens of an unusual form of *A. Filix-fœmina* collected in Staffordshire, which agree with the one under consideration in the irregularity of size and cutting of the pinnulæ, but are without any division or branching of the rachis; they likewise agree in the dwarfish habit and permanent barrenness of the fronds.

The plant grows readily, increasing its roots and putting out fresh fronds much in the manner of shoots, without having any well-defined rhizoma. Finding no allusion to this variety in your valuable 'History of British Ferns,' or in the 'Notes on Irish Natural History,' I have been induced, in the spirit of enquiry, to place these specimens and notes entirely at your disposal, in order that the variety may be assigned to whatever species it may belong, through the medium of 'The Phytologist,' to which, and its promising contemporary 'The Entomologist,' I wish enduring success.—*John Hardy*; * 52, *Trippet Lane, Sheffield, October 11, 1841.*

[The singular fronds accompanying this obliging letter, evidently partake in some degree of a monstrous or unnatural character, the rachis being often dichotomous and irregularly branched, and the pinnulæ invariably barren. The venation, although uncertain and affording no positively tangible character, evinces a nearer approach to that of *Cystopteris fragilis* than to any other of our ferns, the veins in the pinnulæ being alternately branched; the size also of the fronds, which do not exceed seven inches in length, and the decurrent pinnulæ attached throughout to the midrib of the pinna, favour this conclusion, as these characters occur not uncommonly in some of the forms of that pretty species.—*E. N.*]

64. *Description of a metamorphosed variety of Polytrichum commune.* On examining some specimens of mosses received a few days ago from Roborough, Devon, my attention was drawn to a remarkable accidental variety of *Polytrichum commune*, which exhibited the union of two calyptræ, forming a very beautiful illustration of the power of cohesion of two distinct bodies, under favourable circumstances, possessed by the vegetable kingdom, and so commonly represented by united leaves, stems, flower-stalks, &c. The description of the specimen is as follows. *Stem* about three inches high, branched, producing two terminal setæ: *perichætia* distinct: *calyptræ* closely adhering by their hairy covers: *leaves* patent, linear-subulate, the margins not involute, serrated; keel serrated at the tip. The specimen in question is remarkable for its manner of growth, it having two setæ from the apex of the stem, each surrounded by a distinct perichætium; the calyptræ also are united by their hairy covers, thus forming a two-celled calyptra:—the origin of which appears to have been in the development of two setæ from the same axis, and the consequent proximity, and most probably the pressure together, of the outer coverings of the calyptræ, which would cause them to adhere while in a young state, and being thus carried upwards by the elongation of the setæ, formed the monstrosity in question. The above was read before the Botanical Society of London, on the 4th of September, 1840; I have since received similar specimens from G. B. Johns, Esq. found by him on an old wall on the banks of the river Walkham, near Walkhampton, Devon, growing plentifully. There is also in the herbarium of the Rot. Soc. Lond. a specimen of *P. juniperinum*, collected by Mr. W. Gardiner, jun. of Dundee, at Hare Craigs, near Broughton, exhibiting a similar monstrosity in that species.—*Thomas Sansom*; 2, *Cloudesley St., Islington, October 13, 1841.*

65. *Lycopodium Selago detected in Tilgate Forest, Sussex.* I was very much pleased last week on visiting Tilgate Forest, to find *Lycopodium Selago* growing plentifully on the banks of the pond below the bog between Pease-pottage gate and Starve-mouse plain. *L. Selago*, *inundatum* and *clavatum* were all growing in abundance within the space of twenty yards. *Exacum filiforme* was growing abundantly in the bog, and in great perfection.—*J. A. Brewer*; *Reigate, October 14, 1841.*

* In a letter to E. Newman.

66. *Tragopogon pratensis*. I have not the slightest doubt that the *Tragopogon* noticed by Messrs. Irvine and Pamplin at Cobham (Phyt. 36), is the true *T. pratensis* of Linnaeus and Smith, (Eng. Bot. t. 434). It is far from being a common plant in England, indeed the only specimens that I have seen are from Sussex (Framfield) and Suffolk, (St. Peters, Southelmham); and it appears to be totally unknown to the majority of English botanists. The more common *Tragopogon* is, I think, as certainly the *T. minor* of Fries, as was pointed out several years since by Mr. Leighton.—*C. C. Babington*; *St. John's College, Cambridge, Oct. 16, 1841.*

67. *Polypodium Dryopteris and calcareum*. I am much pleased with 'The Phytologist,' which promises to be a very useful medium for exchanging information on botanical subjects; and as you seem to adopt the scrap-book motto, viz. "the smallest contribution thankfully received," I may venture to add a mite. You find Mr. Wilson's opinion coincides with mine, as to the distinctness of the two *Polypodia*—*Dryopteris* and *calcareum*. The pubescence, which is one distinguishing character of *P. calcareum*, is a beautiful microscopic object, each slender stem supporting a globular head, but this pubescence soon dries, so that only on freshly gathered specimens can it be fully perceived or accurately examined. Though we found *P. Dryopteris* frequently in Wales, we never met with *P. calcareum* there; and though, like Mr. Wilson, we have cultivated them side by side for years, we can also testify that their respective characters remain unchanged.—*Meta Riley*; *Papplewick, near Nottingham, October 16, 1841.*

68. *Monotropa Hypopitys*. In a note from Dr. Balfour he informs me that he found this plant in August last, in Oak woods, near Cawdor Castle, Nairnshire. I believe this to be the first authentic record of a Scottish habitat.—*Edward Newman.*

69. *Silene nutans*, (Phytol. p. 78). Will your correspondent be good enough to say if the plant grew on or about the Castle previous to the burning? Or are we to regard the circumstance he mentions as a curious parallel to that spoken of by Morison (*Dialogus inter Socium &c.*, p. 495), respecting the sudden appearance of *Sisymbrium Irio* on the ruins of London, after the great fire of 1666?—*L. H. Grindon*; *Manchester, October 20, 1841.*

70. *Quinate Enothera*. I have been much interested this autumn by finding numerous flowers on a plant of *Enothera grandiflora* in my garden, possessed of five sepals, five petals, ten stamens and five to ten stigmas, while the remainder of the flowers on the same individual presented the usual quaternary arrangement of their parts. This may have been observed before, but as it is an interesting fact in Phytology, I send it you for publication if you think proper.—*Id.*

71. *Substitution of Leaves for Petals in a Dahlia*. While upon this subject, I may mention that a *Dahlia* of mine has this autumn presented the curious substitute of green leaves for petals; the whole of the "flower" being composed of thick, fleshy expansions, arranged in an imbricate form, and springing, not from a common receptacle, but in regular verticils on the terminating half-inch or so of the peduncle. A more beautiful illustration of the doctrine of Morphology I have seldom seen.—*Id.*

72. *In the Gardeners' Chronicle* for September 25, 1841, we observe the following correction of an error which appeared in a preceding No., and was copied by us into 'The Phytologist,' p. 80. "*Spurless variety of Dog Violet.*"—In our notice of this at p. 599, we unfortunately ascribed its discovery to Mrs. Gye—it should have been Miss Gage." We did not see this until too late for inserting it in our last.—*Ed.*

73. *Eriophorum alpinum*. We are glad to see from a notice in the *Gardeners'*

Chronicle, p. 662, that this pretty little plant "has been re-discovered in a new situation, about two miles from Dumlánrig Castle." We suspect that this should be Drumlanrig, in Dumfriesshire; if so it is about 90 miles South of the "bog of Restenat, near Forfar," hitherto the only authentic British station for this species, but where for many years it has not been found, in consequence of the bog having been drained. In preparing for publication the second edition of 'English Botany,' it is a pity that the figure of the young *Carex dioica* should not have been erased from the otherwise characteristic portrait of this *Eriophorum*, (E. B. 311, and t. 71 of the new edition); at all events we think it ought to have been mentioned in the text, for it is obvious that the figure as it now appears, must mislead those who have not seen the plant itself, unless they have access to Smith's 'English Flora,' where alone, we believe, has the error been noticed.—*Ed.*

74. *Death of M. De Candolle.* Our readers will doubtless have seen numerous notices of the decease of this eminent botanist, which took place at Geneva on the 9th of September; we nevertheless deem it our duty to record an event in which all botanists must feel deeply interested. Seven volumes of M. De Candolle's great work, the 'Prodromus Systematis Regni Vegetabilis,' have already appeared, wherein are described the whole of the Thalamifloræ and Calycifloræ. We may conclude by trusting, with a contemporary, that the eighth volume of the Prodromus "is in so advanced state as to enable his relatives to publish it; but after that, however much there may be to hope, there is more to fear."—*Ed.*

75. *Illustrated Catalogue of British Plants, arranged according to the Natural Orders.* We are glad to see a work bearing the above title announced by Mr. C. E. Sowerby. It is to be published in monthly numbers, each containing 8 plates, or 48 coloured figures, with letterpress.—*Ed.*

ART. XXXIV.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

October 1. —Hewett C. Watson, Esq. F.L.S., vice-president, in the chair. Mr. Baxter, of the Botanic Garden, Oxford, exhibited specimens of *Blechnum boreale*, collected by Miss Mary Beever, in which the margins of the pinnae were crenate. Mr. B. D. Wardale exhibited specimens of *Carex binervis* and *distans*, and other interesting plants. Mr. Watson exhibited specimens of the following plants:—

1. *Mimulus luteus*, found by him apparently wild and growing abundantly in marshy ground along the north side of the Tay, from half a mile to a mile below Perth; and also from a rill by the roadside, in front of Daenacardock Inn, forest of Athol, Perthshire.

2. A land variety of *Callitriche pedunculata*, from Mr. W.'s garden; supposed to have originally come from Esher Common, and inadvertently made in the fourth edition of Hooker's 'British Flora' a variety of *C. autumnalis* instead of *C. pedunculata*, a species with which it perfectly agrees in the elongated peduncle and keeled fruit, the latter being only half the size of the fruit of *C. autumnalis*.

3. A series of five specimens of *Festuca pratensis* and *lioliacea*, showing the intermediate states of the supposed two species. The first was the common form of *F. loliacea* of British authors, bearing eleven nearly sessile spikelets disposed alternately along the common stalk or rachis, so as to constitute a simple spike or raceme. The second differed by having the peduncles of the spikelets slightly longer, and two of them divided. The third, still a spiked raceme of *Festuca loliacea*, but in the place of the two lower spikelets there were two branches bearing respectively four and six nearly sessile spikelets. In the fourth the form of the panicle was more developed, there being seven principal branches bearing from two to five spikelets each, on very short stalks. In the fifth the spikelets were more decidedly stalked and disposed into a panicle, which had the ordinary appearance of that of *Festuca pratensis* in luxuriant growth. All five specimens

were gathered by the Thames, shortly above the Lock at East Moulsey, the racemose inflorescence distinguishing the specimens which had grown nearer the towing path, where the ground was more dry and stony.

4. *Cnicus pratensis* and *Forsteri*. A series of specimens designed to show that branched plants of *C. pratensis* are referred by botanical authorities to *C. Forsteri*, and that possibly all specimens of *C. Forsteri* are luxuriantly developed plants of *C. pratensis*. Four specimens of *C. pratensis* were exhibited in its usual state, each having a solitary flower and from one to three crenate leaves on the stem. A fifth differed from these in having two flowers and six leaves on its stem. A sixth specimen from Sir W. J. Hooker, and labelled "*C. Forsteri*, Weybridge," had also a two-flowered stem, the lower portion of which was absent, but it was accompanied by a leaf somewhat pinnatifid instead of crenate at the edges. Two other specimens, gathered near Whitmoor Pond, Surrey, in June last, presented a still wider variation from the ordinary form of *C. pratensis*, and would be called *C. Forsteri* by most botanists: the stems bore respectively two and four flowers, and eight and ten pinnatifid leaves. Only a single plant had been found by Mr. W., but having six separate stems from the same root, mostly with two or three flowers each. The last specimen exhibited was one that had been collected by Mr. Coleman near East Grinstead. This one differed from the Whitmoor plant in having its leaves more divided and a branched stem bearing eleven flowers, together with the broken peduncles of two or three others. Mr. C.'s specimens closely corresponded with the specimens of *C. Forsteri* preserved in Smith's herbarium, and is doubtless the true plant. In the absence of the intermediate specimens it would have appeared to be very distinct from *C. pratensis*, but the transition is so strongly established throughout the other specimens as to render it difficult to say where the one alleged species ends and the other commences. Mr. Watson states the transition is still further aided by a foreign specimen in Smith's herbarium, labelled "*Carduus dissectus*, (Vill.)" and which has only one flower though many leaves on a stem. Between the Weybridge *C. Forsteri*, as named by Sir W. J. Hooker, and the two-flowered specimens of *C. pratensis*, there was scarcely a perceptible difference, except in the one pinnatifid leaf of the former and the slightly crenate leaves of the latter; but to counterbalance this difference in foliage Mr. Watson produced two leaves gathered that day from the same plant in his garden, one of which was simply crenate, while the other was pinnatifid; the plant from which they were plucked being an undoubted *C. pratensis*.

5. *Juncus lampocarpus* and *nigritellus*. A series of specimens to show that *J. nigritellus* of English botanists is identical with *J. lampocarpus*, unless in some cases where small specimens of *J. acutiflorus* pass under the same name. Mr. Watson believed that *J. nigritellus* might originate in two ways from *J. lampocarpus*: occasionally small feeble plants of the latter, with very few clusters of flowers, are named *J. nigritellus*, but perhaps more usually this alleged species is represented by detached shoots or branches of *J. lampocarpus*, produced by the flower-stalk being trodden down by cattle or laid prostrate by wet weather; various changes are thus made in its inflorescence; one of the variations being seen in the production of roots at the joints of the stem, and the shooting up of secondary branches, terminated by a few clusters of flowers. As the old stem decays, these branches, being rooted at the base, become distinct plants and are gathered as *J. nigritellus*, as was shown by specimens on the table. It was Mr. Watson's opinion that several of our alleged species are in fact only extreme forms of some one or two other species. In speaking of one alleged species being the extreme forms of two other species, he meant that the varieties of the two might be so much alike as to be combined into a third supposed species by those botanical writers who describe plants from dried specimens, and also do not supply their herbaria with series of specimens sufficient to illustrate the range of variation for each species.

A letter was read from Mr. James Rich, of Mahon, giving an account of a botanical excursion made by him to Majorca. Mr. R. having left Mahon in the latter part of April, reached Palma after a sail of four days, from whence he proceeded to Valldemosa, about eight miles distant, which Mr. R. remarks is "a place of extreme beauty amongst the mountains; in some places the rocks rise to an immense height, almost perpendicularly from the road, with their grey-looking solitary peaks generally buried in clouds. At their bases the luxuriance of the vegetation is unmatchable, but as you look higher up you see nothing but a stunted oak or a pine (*Quercus Ilex* and *Pinus halepensis*), growing as it were out of the solid rock." The following plants are a portion of those collected by Mr. R. for the Society's collection, viz.—*Punica granatum*, *Asphodelus ramosus* and *fistulosus*, *Lonicera inflexa*, *Iris sisyrinchium*, *Hypericum Balearicum*, *Delphinium statophysagria*, *Ceterach officinarum*, *Sedum albuminum*, *Salvia clandestina*, *Origanum majoricum*, *Thymus filiformis*, *Verbascum sinuatum*, and a number of others which, although common to England, are exceedingly interesting in a geographical point of view. Mr. R.'s next journey was to Soller, about fifteen miles distant from Palma, and three miles from the sea, the details of which he has promised to give in his next letter, and concludes the present with a list of species added to his former collection, amongst which we observed *Althaea hirsuta*, *Lavandula spicata* and *dentata*, *Bellis annua*, *Tragacanthus poterium*, *Hedysarum spinosissimum*, *Psoralea bituminosa*, *Cytisus spinosa* and *argenteus*, *Anchusa angustifolia*, and *Anagallis phanicea*; most of which were collected on the road from Valldemosa to Soller, near the base of the mountains, some of which rise to an altitude of near 5000 feet above the sea.—T. S.

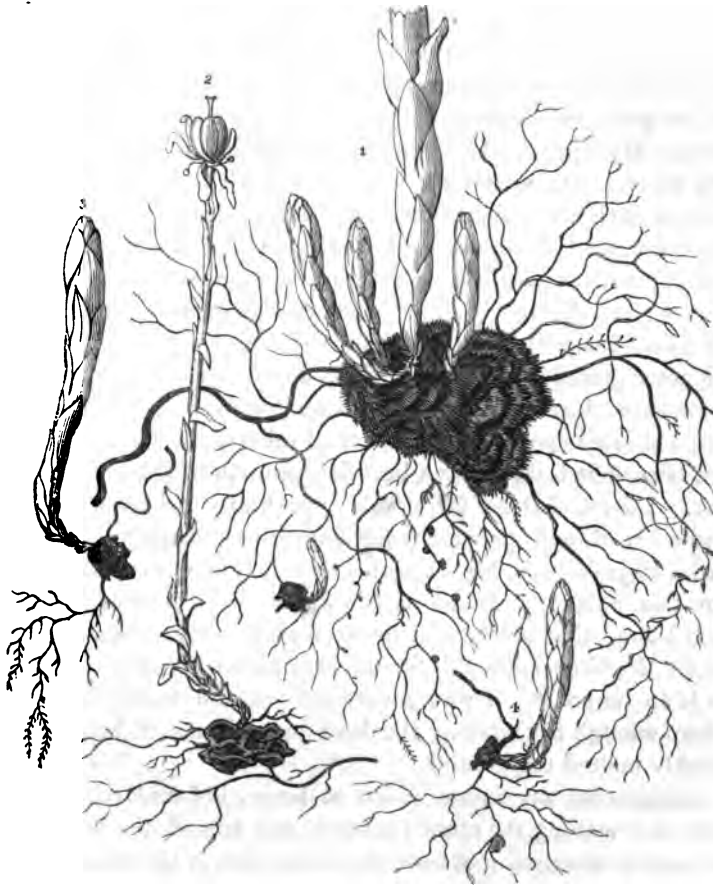
THE PHYTOLOGIST.

No. VII.

DECEMBER, MDCCCXLI.

PRICE 6D.

ART. XXXV.—*On the parasitic growth of Monotropa Hypopitys.*
By EDWIN LEES, Esq., F.L.S., &c.



ILLUSTRATIONS OF THE MODE OF GROWTH OF *MONOTROPA HYPOPITYS*.

1. Base of a mature plant, 14 inches high, and three young unexpanded plants, growing from their radical parasitical knob. 2. Smaller plant in seed 3, 4 & 5. Young plants growing from radical knobs.

H

HAVING engaged to accompany my friend Mr. Buckman, of Cheltenham, in a botanical exploration of the Cotswold Hills, in the second week of September last, we found ourselves on the evening of the third day at the base of the precipice of Cleeve Cloud, on our return. We had just emerged from a rocky wood, where we had been fortunate enough to find *Rubus saxatilis* in fine fruit, *Convallaria Polygonatum*, also in fruit, and some other rarities; and were about at once to turn our steps homeward, when I noticed a thick beech-wood about two miles farther on, and proposed advancing to it. My friend, who had been on his legs ever since the early morn, for we had travelled far and long, rather quailed at this proposition, urging the necessity of recruiting the outer man before undertaking further enterprizes, but yielded the point on my suggesting to him that we might possibly find *Monotropa Hypopitys*, although he said he had never heard of its growing there. On arriving at our ground we scaled a stone wall, and entered such a "twilight grove" as I have seldom seen. It formed indeed a tent of the densest foliage, consisting almost exclusively of beeches; and as evening was rapidly approaching, was really so dark that we could scarcely at first see our way to find anything.

After a little inspection my friend showed me several fine specimens of *Epipactis grandiflora*, which only redoubled my anxiety to find the *Monotropa*, but we searched for some time in vain. At last we detected a stunted specimen, then several others, and finally, where a tree had been felled, there was a luxuriant growth of thirty or forty all together. I deemed this a favourable opportunity to ascertain, if possible, whether *Monotropa* were really parasitical, as suggested by Mr. Luxford, (*Phytol.* 43). Mr. L. states that he could not satisfy himself on this point; and indeed Sir James Smith remarks in his 'English Flora,' that he "could never find it truly parasitical, any more than Mr. Graves, though the uniform pallid hue of the plant indicates it to be so."* I was accordingly careful to get up several roots deep enough from among the dead fungoid mass of beech-leaves that thickly matted the ground.

On commencing my investigation at home, I found considerable difficulty in removing the matted mass of soil around the base of my plants; and in attempting to trace the connection of the tapering base of the succulent stem therewith, in spite of all my care, several stems broke off, and I was foiled in my efforts, although I found the fibres of the beech-roots inextricably connected with this compact brown

* 'English Flora,' ii. 250.

lump, (see fig. 1). Looking carefully, however, over the mass of roots and soil I had brought away, I observed numerous young plants which seemed to promise greater facilities in the examination. These I accordingly worked at very patiently, but still, at the base of each appeared what to the naked eye seemed hard granules of soil mixed up with hairy radical fibres of beech. Expecting that maceration in water would remove this hard matter and expose the roots of the *Monotropa*, I steeped them in water; but to my surprise they remained as hard and intractable as before. On applying a lens to solve this mystery, it became fully evident that these hard hairy knobs were in fact parasitical nidi attached to the roots of the beech, and deriving their sustenance from them. Having now obtained a clew, I found that the hairy knobs on the beech-roots were of all sizes, from that of a pea, from which the little embryo *Monotropa* was sprouting, to that of a crab, nourishing a full company of several plants, (see the figures).* These parasitical knobs, which constitute the nidi from which the *Monotropa* springs, are formed on the extreme radical fibres of the beech, but I was able to trace their connection with the thicker roots, and they were evidently composed of the swollen fibres agglomerated together, and so covered with a brown hirsuture, that to the eye they looked like lumps of compact soil. The larger knobs had the same aspect when examined with a lens, so that they, no doubt, increase in size every year, as additional sustenance is required by the multiplying plants; for when a single plant has once established itself on its parasitical attachment, numerous offsets soon arise from the parent plant, (see fig. 1). At the same time, as the juices are concentrated in the knob, and it increases in size, so do the fibres about it ramify in complexity on all sides, and send forth their spongioles in every direction, so that the parasitic mass, like the mistletoe, always has an abundant magazine at command. These hairy parasitical nidi appear to me most analogous to the moss-balls formed by the *Cynips Rosæ* on roses and sweet-briars, except that while the latter, being formed for the nourishment and habitation of insects, only endure for a season, the former are perennial.

I have shown, I think satisfactorily, that the hairy vesicular knobs that I have discovered, are seated on, and of necessity nourished by, the radical fibres of the beech, connected as these are with the ramifications of larger roots. As the *Monotropa* springs from and derives its nourishment through the medium of these nidi, which increase in

* I observed, also, many very minute nodules on the beech-roots, where the embryo plant was as yet not apparent.

size with the growth of the plant, it is proved to be a true parasite. The figures will show the connection of the knobs and radical fibres perhaps better than can be explained by words.

I scarcely wonder that any one should consider *Monotropa* to be non-parasitical, for it requires the utmost care and patience in the examination; and it is only after much attention that I have arrived at the persuasion that it is really a parasite. The full-grown plant is naturally examined by all who have the opportunity, but here the attempt to trace the connection between its stem and the roots of the beech, is rendered so difficult, if not impossible, by the impermeable mass of fibres, mould, and fleshy clusters* that appear, that it becomes no easy matter to untie the truly Gordian knot. Added to which the stem of the *Monotropa* tapers down to so narrow a junction with its root, that it generally breaks off in the examination. Besides, the whole mass is obscured with a hirsuture that appears like a byssoid fungus. These hairy fibres, however, appear to me to be really part of the economy of the plant, imbibing nutriment from the rootlets of the beech, to which they are closely applied, and conveying it to the succulent radicles of the *Monotropa*, with which they are also connected. In proof of this I find these hairy fibres closely applied to the swollen rootlets in the smallest plants that I have been able to find. As I before stated, therefore, I perceived it expedient to hunt for young unexpanded plants, their connection with the roots of the beech being more readily observable than in matured flowering ones, from the cause previously mentioned. In every case the only clear way to observe the connection of the roots of the beech with those of the *Monotropa*, is to steep the hirsute knob at the root of the latter in water, after clearing away as much of the mould as possible, and then placing the moistened mass on paper, carefully examine it with a magnifier. The fleshy roots of the *Monotropa* will then appear as if covered with a varnish, inextricably mixed up with the beech rootlets, which in various places appear *swollen* at their junction with the parasite, while a close examination shows ultimate hairy fibres fixing the roots of the *Monotropa* to the rootlets of the beech, and seeming to absorb nutriment from the alburnum of the latter. The rootlets thus circumstanced are evidently in a living state, vigorous, and sending forth their minute spongioles in all directions.

The question still remains for elucidation, as to how the seed of the

* The fleshy clustered radicles of the *Monotropa* bear a considerable resemblance to the "densely aggregated fleshy fibres" which form the root of *Listera Nidus-Avis*. They are as succulent, but still more crowded and brittle than in the latter plant.

Monotropa establishes itself upon the rootlets of the beech, and by what process the hirsute knobs from which it derives its nourishment are formed. The seed must exercise some power in concentrating the juices of the rootlet about it, and in forming this magazine of nutriment, which may be analogous to that performed by the liquid which the *Cynips* deposits with its egg in the plant or tree frequented by it, producing those curious galls so common on the oak and other vegetables. It may also be questionable how long the *Monotropa* requires to arrive at maturity after the seed has fallen, for I would not be too certain that the young plants I met with were seedlings of last year, though it is probable they are so. When once established, numerous offsets are thrown off from the perennial nidus. *Monotropa Hypopitys* varies much in size and luxuriance, some specimens with a single flower being only three inches high, while others occur above a foot in height, with a cluster of seven or eight flowers. The strong primrose-like scent exhaling from it is very remarkable and characteristic.

The seeds are peculiar, and as the valves of the capsule open, they appear pressing out at the interstices like a host of very minute worms. Smith describes them as "very numerous, minute, oval, each enveloped in a membranous reticulated *tunic*, greatly elongated at both ends." In fact their structure is scarcely discernable with the naked eye from their minuteness, but when examined through a lens, they appear like very minute globules of gum, screwed up in a white elongated envelope, and thus simulating the aspect of extremely small worms. They are so adhesive to anything they come in contact with, that even when accidentally dropping on the smooth surface of the finger-nail, they cannot be shaken off. This shows how easily the seeds may affix themselves to the roots of the beech under which they grow, whose radicles, more almost than those of any other tree, approach the surface of the earth, and so occupy the ground that scarcely any other plants, besides mosses and fungi, can flourish beneath its shade.

Malvern Wells, Sept. 28, 1841.

EDWIN LEES.

ART. XXXVI. — *Three Days on the Yorkshire Moors.*

By RICHARD SPRUCE, Esq.

THE excursion detailed in the following pages was undertaken, in company with a botanical friend (Mr. Ibbotson of Ganthorpe), principally with the view of exploring Whitston-cliffe, on the western edge of the oolitic hills, and the Hole of Horcum, on the high moors between Pickering and Whitby.

We left Ganthorpe, a small village about a mile and a half West of Castle-How-

ard, at 9 o'clock in the morning of Tuesday, June 29th, 1841; a walk of a mile brought us to Terrington, a noted locality for *Sedum dasyphyllum*, which we observed on an old wall. On Colton Moor, three miles farther on, we first observed *Digitalis purpurea*; and throughout the rest of our journey we never went far without seeing it in greater or less quantity: here too we noticed the pretty *Antennaria dioica*. From Colton to Gilling the distance is three miles; between the last-named place and Ampleforth College we saw *Carex intermedia*; and in ascending the steep hill to Ampleforth Mill, we gathered a few plants of *Geranium columbinum*. On Ampleforth Moor we found *Empetrum nigrum* and *Lycopodium clavatum*, plants which occur abundantly on all the high moors, besides a few plants of *Aspidium Oreopteris*. Having passed Ampleforth Moor we came upon Wass Moor, and were busily employed in hunting for *Lycopodium alpinum*, which is said to grow there, when we were driven from our ground by a tremendous thunder-storm, and after various stoppages reached the Hambleton Hotel, 16½ miles from our place of starting, at 5 o'clock P.M., amidst a heavy fall of rain. Our plans were now totally disconcerted, for we had anticipated spending the greater part of the afternoon and evening at Whitstoncliffe; we however started again about 6 o'clock, and in twenty minutes reached the brow of Whitstoncliffe, having in our way observed *Listera cordata*, *Airaverna* [F] and *Lycopodium Selago*. Here the view was most magnificent; we stood on the highest part of an almost perpendicular range of cliffs, extending in the form of a crescent, at an elevation of 1,178 feet above the level of the sea. At our feet lay Gormire, a remarkable lake about a mile in circumference, but appearing to us scarcely larger than a duck-pond; beyond extended a vast plain, a continuation of the vale of York, on which we distinguished Thirsk, distant about five miles, and several other towns; farther still were lofty hills, conspicuous among which was Penhill, at the entrance of the romantic valley of Wensley dale. We now commenced descending the hill—no trifling task, and in our way down gathered fine specimens of *Avena pratensis* (frequent on the coralline oolite of Yorkshire, and also on the magnesian limestone), *Aira cristata*, *Neckera crispa*, *Jungermannia Tamarisci* and *Sphærophoron coralloides*. At Gormire we collected *Pilularia globulifera*, and *Potamogeton heterophyllus* without floating leaves, and noticed *Menyanthes trifoliata*. If the descent had been difficult, much more fatiguing and dangerous was it to ascend, as we did at the steepest part where an ascent was at all practicable. On our toilsome journey we collected *Arabis hirsuta*, *Geranium lucidum*, *Aspidium aculeatum*, *Cystopteris fragilis*, *Asplenium Trichomanes*, *Tortula tortuosa* and *Jungermannia platyphylla*. We had not reached the summit of the cliff when we were again overtaken by a heavy shower, and having clambered up as speedily as possible, we sat down under an old wall with an umbrella spread over us. And here we saw a sight that can be seldom witnessed; a beautiful rainbow extended over our heads to the opposite extremity of the crescent, whence it was continued downwards into the vale below, and, had it not been for the small space immediately underneath us, would have formed a perfect circle. After spending little more than two hours at Whitstoncliffe, for the satisfactory exploration of which as many days would be required, we made the best of our way to the hotel.

We were detained at the hotel by rain until 9 o'clock the following day, June 30th, when we again started and walked across Hambleton to Scawton, 2½ miles, and in our way gathered *Poa compressa* and *Orthotrichum Hutchinsiae* on an old wall; passing the village we descended into a deep glen called "the Howle," where we spent a considerable time very usefully. The most conspicuous object here was the elegant

Polypodium Phegopteris, which grew in the greatest profusion on the rocks bounding the narrow valley; besides laying in a stock of this, we gathered *Dicranum pellucidum*, *Hookeria lucens*, *Hypnum palustre*, *Jungermannia asplenoides*, *Jung. furcata* var. β , *elongata*, *Peltidea horizontalis* and *canina*, — all beautifully in fructification.

Leaving Scawton Howle we next directed our course to Rievaulx, 3 miles. Nothing particular met our view (save *Verbascum Thapsus* growing in the rocky places) until we came to a boggy mead within a short distance of Rievaulx, where we gathered fine specimens of *Primula farinosa*, *Schoenus nigricans* and *Eriophorum pubescens*. At Rievaulx, on the bridge which crosses the Rye, grew *Geranium pusillum*; and at some distance up the river we found a few plants of *Hesperis matronalis*. We next visited Rievaulx Abbey; I have not room here to expatiate on its beauties, or on those of the romantic valley (Bilsdale) at the southern extremity of which it is situated; but I may mention that we gathered *Rosa tomentosa* growing nearly at the summit of the ruins of the choir. We were now directed across the hills to Beckdale and Helmsley, but as we had no road to follow, we were many times at a loss which way to turn, and did not reach Helmsley until the evening. But our walk was far from being uninteresting: we passed along several fine and well-wooded valleys, and in one of them, called Dark Gill, we found *Helleborus viridis* and *Actæa spicata* growing together in great abundance. This is certainly the wildest station for the former plant I ever saw, and I think no one who should see it growing there, could for a moment doubt its being truly indigenous to the soil: I know several other localities for *Actæa*, but all on either the coralline oolite or magnesian limestone. Besides the two plants last mentioned, we observed here and there plants of *Campanula latifolia*, *Pyrola minor*, *Paris quadrifolia* and *Crepis paludosa*. A little beyond this wood we saw on a hillside a patch of *Sambucus Ebulus*, but not in flower; and in another wood we found quantities of *Elymus europæus* and *Melica nutans*. By the brook-side at the bottom of one of the valleys grew *Myrrhis odorata*. After toiling up and down hill for a long time, we at last emerged into Beckdale, and commenced searching for *Cypripedium Calceolus*, which has been gathered there, but did not succeed in finding it. In fact, to examine perfectly the tract of country which we this day only passed through, would require many days, and even weeks. Beckdale extends quite to the town of Helmsley, where we remained a short time for the sake of refreshment and rest, and then started again for Pickering. Our road lay through a highly cultivated, and therefore (to us) uninteresting country; and passing through Kirby Moorside, Symington, &c., we arrived at Pickering about 10 o'clock P.M.

At 8 o'clock next morning we left Pickering by the Whitby railway for the Hole of Horcum. The part of the railway traversed by us runs up a deep valley, through ground in general somewhat marshy, and two or three times crosses the brook which runs through Pickering. As we went along we noticed the following plants: *Ægopodium Podagraria*, *Serratula tinctoria*, *Myrica Gale*, *Carex vesicaria* and *riparia*. At Raindale (7 miles from Pickering) we left the railway, and turning to the right, proceeded across the barren moors in the direction of the Hole of Horcum, which we reached after three or four miles of very rough walking, having gathered by the way *Sphærophoron coralloides* (growing on large stones), and a few plants of *Scyphophorus cocciferus*. The Hole of Horcum is "a singular basin-shaped hollow, suddenly and deeply excavated, in the Moorlands, through the calcareous grit and lower strata," and may be about four miles in circumference, measured on the ridges of the hills which bound it. Here we expected to meet with *Cornus suecica*, but we unfortunately happened to come up to "the Hole" at a point exactly opposite to its locality, and being

ignorant of this, we sought about in every place that we thought likely to produce the plant, without seeing anything like it, until about noon, when we arrived at a little house standing on the east side, under Saltergate Brow. Here we called and procured some refreshment, and on enquiring if our entertainers had ever observed anything like the plant, which we described to them, we learned that such a plant (called by them "honeysuckle") had been sometimes come in search of by botanists. The mistress of the house (a widow of the name of Smith) was the only person acquainted with the exact locality, and she chanced to be from home; but her son-in-law recollected having heard her say that it grew on the hill-side adjoining the Whitby road, between two plantations, and to this place he volunteered to conduct us. We gladly accepted his offer, and on coming to the spot were gratified by finding the beautiful little *Cornus* growing in great plenty, but so nearly out of flower that after a laborious search we only succeeded in procuring a dozen flowers each. Its fruit does certainly considerably resemble that of the common honeysuckle, besides there being a close natural affinity between the two plants, and hence no doubt arose the name we heard given to it. Along with the *Cornus* were three other plants with nearly ripe fruit, viz., *Empetrum nigrum*, *Vaccinium Myrtillus* and *Vitis-Idea*. The other plants observed here were *Habenaria chlorantha*, *Gymnadenia conopsea*, *Listera cordata* and *Crepis paludosa*. In our walk hence to Pickering (9 miles) we observed on an old wall near Lockton, *Asplenium Trichomanes*, *Ruta-muraria* and *Adiantum-nigrum*, and a variety of *Cystopteris fragilis*, growing in great abundance. We also saw here and there, in stony places, *Cerastium arvense*.

On our return to Ganthorpe (15 miles) next day, our road lay principally through the vale of Pickering (Kimmeridge clay), where we gathered *Festuca elatior* and *Rosa systyla* near Kirby Misperton, and *Nasturtium sylvestre* at Newsham Bridge, where we crossed the Rye. Coming again upon the coralline oolite we found *Anthemis arvensis* on Barton heights, and this was the last plant we saw worth mentioning. I will only farther observe that although during our ramble we had collected many interesting plants, we were yet deeply sensible that for want of sufficient time we had but imperfectly explored a country which undoubtedly contains many rarities hitherto unnoticed.

RICHARD SPRUCE.

Collegiate School, York,
12th October, 1841.

ART. XXXVII.—*A List of Plants met with in the neighbourhood of Swansea, Glamorganshire.* By J. W. G. GUTCH, Esq.

THE following must by no means be considered a complete Catalogue of the plants to be met with in the unusually rich locality presented by the neighbourhood of Swansea, but rather as the nucleus of a future Swansea Flora. In the absence of such a work, the list is offered to the notice of botanists who may be visiting this portion of Glamorganshire, which they will find a district peculiarly rich in both land and marine plants. Several rarities have been detected there within the last two years, by my friend Mr. Ralfs, of Penzance, a most indefatigable and attentive botanical observer; and I have no doubt that many more, if carefully sought for, might be added to the already copious list, as much ground, I feel convinced, yet remains unexplored.

Swansea can now boast of a Royal Institution for the cultivation and advancement of Science, at the head of which, as President, is L. W. Dillwyn, Esq. The Institution already possesses a most extensive herbarium presented by Mr. Bicheno; and I look forward with confidence to the time when a complete list of all the plants found in the neighbourhood, with a specimen of each species, will be deposited in the Institution: This would indeed be most interesting and acceptable to the botanist visiting Swansea, and would supply, in the best manner, the present want of a local Flora.

Ranunculus Flammula. Neath Canal; Cromlyn Bog; and Singleton Marsh.

——— *Lingua*. On Cromlyn Bog and Neath Canal, in great abundance; also Kenfig Pool.

——— *bulbosus*. Near the Neath Canal by Dan-y-graig.

——— *parvulus*. The plant mentioned under this name in the 'Botanist's Guide' as having been found near St. Helen's, is nothing more than a variety of *Ran. hirsutus*, (Dillwyn).

——— *hederaceus* and *aquatilis*. Neath Canal.

——— *sceleratus*, *repens* and *acris*.

Trollius europæus. On the banks of the Dylais above the waterfall at Aberdylais, in moist meadows between Pont Nedd Vechn and Usgoed Eynon gaur, and in the valleys about Ystradgunlais, (Dillwyn).

Helleborus fetidus. Found by Dr. Turton near Park Mill, towards Pennard Castle, and existing at present in great abundance.

Aquilegia vulgaris. In hedge-rows near Mincian Hole, with both white, blue and pink flowers.

Nymphaea alba. In the greatest abundance on Cromlyn Bog, the water at certain seasons of the year being quite studded with its elegant blossoms.

Papaver dubium. Common.

——— *Rhæas*. Kilvey Hill.

Meconopsis Cambrica. At the waterfalls about Pont Nedd Vechn, and in the valley above Aberdylais, plentiful, (Dillwyn).

Glaucium luteum. Near Port Tennant, Singleton and Gower.

Fumaria capreolata. Common by roadsides between Ferry and Port Tennant.

Matthiola sinuata. On the sand-hills between Swansea and the Mumbles, nearly opposite Singleton; and also on the sea side of Cromlyn Burrows, but now much less plentiful than formerly.

Nasturtium officinale. Common.

——— *sylvestre* and *terrestre*. Banks of the Neath Canal.

Barbarea vulgaris. Near Park and Pennard Castle; common at Cadoxton.

Arabis hirsuta. On the walls of Oystermouth Castle; about Park Mill; and near the Ferry.

Sisymbrium thalianum. Near St. Helen's turnpike.

Cardamine hirsuta, Kilvey Hill; and var. *flexuosa*, common.

Draba aizoides. Found growing in the greatest luxuriance on Pennard Castle, where it was first noticed by the late Mr. Lucas, of Stouthall, who communicated his discovery to Dr. Coite of Ipswich; and it was the fault of Dr. Coite, as he admitted to me, that the merit of this interesting addition to the British Flora was not given to Mr. Lucas. Mr. Lucas afterwards showed the plant to Dr. Turton, and he sent the specimens to Mr. Sowerby which were figured in the 'Eng.

- lish Botany.' It also grows on the Worms Head, and on several inaccessible cliffs in that neighbourhood; (Dillwyn).
- Cochlearia officinalis*. Banks of the Tawe, between Swansea and Llandore, plentiful, (Dillwyn).
- *anglica*. Found by Mr. J. Woods on the river-banks a little above Swansea, (Dillwyn).
- *danica*. Near Singleton; abundant on rocks near Mumbles light-house; in Kidwelly Church, Oystermouth Castle.
- Armoracia rusticana*. Road to Dan-y-graig; in enclosure of Lady Huntingdon's Chapel, Swansea; and Fabian's Bay.
- Thlaspi arvense*. Gathered near Wych-tree Bridge, and I believe it is not uncommon in the neighbourhood, (Dillwyn).
- *alpestre*. About Pont Nedd Vechn and Aberpergwm, (Dillwyn).
- Hutchinsia petraea*. On the walls of Pennard Castle; and on sandy ground south of Pennard Castle, April 20, 1839, by M. Moggridge, Esq.
- Teesdalia nudicaulis*. On wastes and road-sides about Swansea, not uncommon, (Dill.)
- Cakile maritima*. In abundance on the sea-shore near Salt-house point, Fabian's Bay.
- Erysimum Alliaria*. Near the Ferry.
- Senebiera Coronopus*. Singleton Marsh.
- *didyma*. Llandwr Marsh, common; Cadoxton and Fabian's Bay.
- Capsella Bursa-pastoris*. Cline Wood and Mumbles road.
- Lepidium rudemale*. Occasionally found on rubbish-heaps and ballast-banks about Swansea, (Dillwyn).
- *campestre*. On banks of the Neath Canal.
- *Smithii*. Everywhere on the sea-shore.
- *Draba*. Formerly abounded on the ballast-banks by the river-side a few hundred yards northward from the Pottery, but the ground has been converted into wharfs, and I doubt whether it is now to be found there, (Dillwyn).
- Brassica Napus*. Kilvey Hill, common.
- Sinapis Monensis*. On the downs near Park, and above Mincian Hole, two specimens were gathered last summer and one this summer, 1839, (M. Moggridge). Rocks and down near Pennard Castle.
- *arvensis*. Common, near St. Helen's turnpike.
- *nigra*. On a rubbish-heap in a field by the side of the St. Helen's road.
- Diplotaxis tenuifolia*. Near Llandwr.
- *muralis*. Between Swansea and Port Tennant, and common on sand-hills by the road-side.
- Crambe maritima*. On the sandy shore between the Neath and Afan rivers, and found by Dr. Turton, near Porteynon, (Dillwyn).
- Raphanus Raphanistrum*. On Kilvey Hill.
- Viola palustris*, and a white variety. River-side, Pentlegare.
- *tricolor*. Near Singleton, but probably strayed from the garden.
- — *β, arvensis*. Common.
- *lutea*. The Black Mountain has been noted as a habitat of this plant since the days of Merrett; and though generally an inhabitant of mountains, I have found it growing on Cromlyn Burrows, (Dillwyn).
- Helianthemum canum*. Cockit, in road leading to back of Uplands.
- *vulgare*. Common.

- Drosera rotundifolia*, *longifolia* and *anglica*. Town Hill in the boggy ground; also in Cromlyn bog and Cwm bucha.
- Polygala vulgaris*, and the white and rose-coloured varieties. On the banks of the Neath Canal, Pentlegare, Worms Head.
- Malva sylvestris* and *moschata*. Common.
- *rotundifolia*. Near Singleton.
- Lavatera arborea*. At Paviland Cave and in Loughor Marshes.
- Hypericum calycinum*. In Nicholston Wood near Penrice Castle; and I believe it to be as much indigenous there as in any other part of Britain; (Dillwyn).
- *quadrangulum*. Road leading to Kilvey Hill.
- *perforatum*. Near and on Kilvey Hill.
- *dubium*. In the woods about Penrice.
- *humifusum*. Singleton; back of Uplands.
- *pulchrum*. Near Singleton, and Neath Canal.
- *elodes*. Near Singleton, and Port Tennant.
- *Androsæmum*. Singleton, and woods near Neath; Britton Ferry, Drumma and Penrice.
- Saponaria officinalis*. Plentiful on the Burrows about Singleton, and has been so since 1802, (Dillwyn).
- Silene inflata*. Sea-shores, common.
- *maritima*. Rocks on the coast of Gower.
- Lychnis Flos-cuculi*. Cromlyn Bog and the Neath Canal.
- *diurna*. Hedges near Kilvey, common.
- Spergula arvensis*. Kilvey Hill.
- Sagina procumbens*. Mumbles Road.
- Alsine peploides* ? Near the Ferry.
- Arenaria serpyllifolia*. Between the Ferry and Port Tennant.
- *rubra*. Plentiful in a stone-quarry near Greenhill turnpike.
- *marina*. Near Neath canal, on muddy shores.
- Cerastium glomeratum*. Between Swansea and Neath.
- *triviale*. Common.
- *tetrandrum*. On sand-hills, not uncommon, growing with *C. semidecandrum*, of which I am satisfied it is nothing more than a variety, (Dillwyn).
- Stellaria nemorum*. Discovered by Mr. Woods at Uscoed Hendry, and in other places about the neighbourhood of Ystradgunlais. This plant is common in the north, but I am not aware of its having been found elsewhere in Wales, or in any of the southern or midland counties of England.
- *media*. Near Singleton.
- *holostea* and *graminea*. Common.
- Linum usitatissimum* and *angustifolium*. Common about Swansea, (Dillwyn).
- *catharticum*. Singleton Marsh; Pennard.
- Tilia microphylla*. Woods about Pont Nedd Vechn, where it was discovered by Mr. E. Foster. It is figured in 'English Botany,' 1705, with the name of *T. parvifolia*; (Dillwyn).
- Acer Pseudo-platanus*. Near Singleton on the marsh.
- Geranium pratense*. Frequent in the hedge-banks between Aberpergwm and Pont Nedd Vechn.
- *robertianum* and *columbinum*. Between the Ferry and Port Tennant.

- Geranium molle* and *dissectum*. Near Port Tennant, (Dillwyn).
 ——— *sanguineum*. In great luxuriance near Pennard Castle; common on the cliffs in Gower, (Dillwyn).
Erodium cicutarium. Common. A var. *triflorum*, or three-flowered Stork's-bill, is also met with near Swansea. It is plentiful on the sand-hills; and although by many botanists considered to be only a variety of the above, yet it certainly differs materially from it; the peduncles are almost invariably three-flowered.
 ——— *cuticularium*, vars. *album* and *purpureum*. Sea-shore near the Ferry.
Oxalis Acetosella. Common in hedge-rows.
Montia fontana. On the Town-hill.
Cotyledon Umbilicus. Common, especially on the road to Uplands.
Sedum Telephium. Llandwr Marsh.
 ——— *acre*. Banks of Neath canal, and Loughor Marshes.
 ——— *reflexum*. Common on walls.
 ——— *Forsterianum*. Banks of Neath canal.
Peplis Portula. In Llandwr Marsh.
Lythrum Salicaria. Common in hedges near Singleton.
Rhamnus catharticus. In Cline and other woods, (Dillwyn).
 ——— *Frangula*. Cline wood.
Ulex europæus and *nanus*. Common.
Genista tinctoria. Llandwr and Forest Marsh; meadows near Pentlegare.
Sarothamnus scoparius. Near Pont Wern; and near Poppit Hill; seen five or six years ago by Mr. Ride.
Anthyllis Vulneraria. In a marsh near Singleton, and on Kilvey Hill.
Ononis arvensis. Near Port Tennant and Singleton.
Trifolium repens. Between Swansea and Singleton.
 ——— *pratense*. Near Neath.
 ——— *medium* and *procumbens*. Kilvey Hill.
 ——— *scabrum* and *glomeratum*. On Swansea and Sketty Burrows, (Dillwyn).
 ——— *fragiferum*. Near Singleton; banks of Neath canal.
 ——— *minus*. Cline wood.
Lotus corniculatus and *major*. Common on the sand hills, and near Port Tennant and Singleton.
Medicago sativa. Kilvey Hill, (cultivated?).
Vicia hirsuta. Fabian's Bay.
 ——— *Cracca*. Kilvey Hill.
 ——— *sativa*, *β. angustifolia* and *lathyroides*.
 ——— *sepium*, var. *flore albo*. In meadows about Inispenlwhc bridge, where this unusual variety was first noticed by Mr. E. Hawkins, (Dillwyn).
Lathyrus sylvestris. About the top of the cliff on the right of the entrance to Caswell Bay, and about Oystermouth Castle.
 ——— *pratensis*. Common in hedges.
Orobis sylvaticus. Found by J. Llewellyn, Esq. in a woody meadow called Fir-point, Cadley, in the grounds of Pentlegare; found also last summer by the side of the drive to the house.
 ——— *tuberosus*. Pentlegare and Cline wood.

J. W. G. GUTCH.

(To be continued).

ART. XXXVIII.—*Notices of Books &c. connected with British Botany.*

1. *A Catalogue of British Plants. Part I. Containing the Flowering Plants and Ferns.* By J. H. BALFOUR, M.D. Edin., Regius Professor of Botany, Glasgow; CHARLES C. BABINGTON, M.A. Cantab., F.L.S.; and W. H. CAMPBELL, Secretary to the Botanical Society. *Second Edition. Printed for the Botanical Society of Edinburgh.* Edinburgh: Maclachlan, Stewart and Co. London: H. Bailliere. Glasgow: Smith and Son. Dublin: W. Curry, jun. and Co. Paris: J. B. Bailliere. Leipzig: J. A. G. Weigel. 8vo. 1841.

THE various improvements manifest in the new edition have greatly enhanced the value of this Catalogue, both as a medium of communication and a manual for reference. Not the least of these improvements we consider to be the change of form; for instead of the unwieldy folio sheet, we now have a greater amount of information compressed into a neat octavo. One grand feature of the new edition consists, however, in numerous changes of nomenclature; the names of the editors are a sufficient guarantee that these changes have not been lightly or unadvisedly made, and their reasons for making them will be seen in the following extract from the Preface. "In drawing up the Second Edition of the Botanical Society's Catalogue, the compilers have been desirous, as far as possible, to make the nomenclature of British plants correspond with that adopted by the best continental writers. In doing this, they have been forced to make many alterations, the importance of which will, it is hoped, be recognized by the members of the Society. They have been guided in their amendments chiefly by the works of De Candolle, Koch, Nees von Esenbeck, Kunth and Leighton. When the name of a genus or species has been changed, reference is made to the name under which it appears in the fourth edition of Sir Wm. Hooker's *British Flora*. The sources whence new species are derived are indicated by reference to the works from which they are taken, and when they are still unpublished as British plants they are marked as additional species."

The importance of following some uniform system of nomenclature cannot be disputed: and anticipating as we do, a very wide circulation for the Botanical Society's Catalogue, we would venture to suggest to our correspondents the expediency of their adopting it as a standard for names in drawing up local lists of plants. We would even go so far as to recommend that the alphabetical arrangement of the Catalogue should also be strictly adhered to; for we consider the systematic arrangement of species in a merely local list, to be a matter of minor importance. The neutrality of the alphabetical arrangement, setting aside its convenience, will surely go far towards recommending the Edinburgh Society's Catalogue as a model worthy of being adopted by botanists engaged in framing local lists of British plants, whether the Linnæan or the natural system may stand highest in their favour as the principle on which a general Flora ought to be arranged.

In comparing the enumerations of the plants in the two editions of the Catalogue, we observe that the new one contains a numerical preponderance over its predecessor, of 13 species and 90 varieties, and includes 24 species not contained in any other list of British plants.

2. *An Illustrated Catalogue of British Plants, arranged according to the Natural Orders; in which the two Systems are combined by reference to 'English Botany,' the works of Sir J. E. Smith, Hooker, Lindley, Macreight and DeCandolle.* By C. E. SOWERBY, A.L.S. London: Sowerby, 3, Mead Place, Lambeth; Longman & Co.; Simpkin & Co. Part 1, 12mo. November, 1841.

WE believe Great Britain to be the only country in the world which can boast of having its botanical treasures fully and ably illustrated by three successive generations of the same family. The merit of designing and engraving the plates of this little work is due to a grandson of the late Mr. Sowerby; and the style in which they are executed is another proof that no inconsiderable portion of the talent displayed in the productions of the first illustrator of 'English Botany,' is inherited by even the younger branches of his family. Each part of the Catalogue will contain 8 plates, each plate comprising 6 coloured figures; the letter-press gives the scientific and English names of the species, their habitats, duration, and times of flowering; together with references to the two editions of 'English Botany,' and to the well-known works of the authors enumerated above. The 48 figures in the first part are very prettily executed. Instead of giving a figure of the *whole* plant on a small and uniform scale, the artist has judiciously adopted the plan of drawing the upper portion of each species, with its flowers and foliage, and, without going minutely into details, has added such other parts as are absolutely necessary for specific distinction. The figures are drawn as nearly of the natural size as the limits would allow, and are carefully and neatly coloured.

We have great pleasure in recommending this Catalogue to the notice of all who, at a moderate price, would possess a portable and useful series of illustrations of our native plants.

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3. *A Series of Botanical Labels for the Herbarium, adapted to the respective Floras of Smith, Hooker, Lindley and Macreight.* Edited by a Corresponding Member of the Botanical Society of London. London: Longman & Co.; W. Pamplin, 9, Queen St., Soho Square. Faversham: W. Ratcliffe. 8vo. 1841.

THESE labels will be found very useful by all engaged in the formation of a British herbarium. They may be had either in sheets, for the purpose of being cut out and attached to the papers containing the species, or made up in a neat 8vo. volume, which can be used as an index to the collection. The following extracts from the preface will more fully explain the plan of the work.

"The aim has been to condense into a small space as much information as possible;—each label therefore contains the Natural Order, the Linnean Class and Order, the generic, specific, and common name of the plant for which it is intended, together with the synonyms of the botanists just named, [Smith, Hooker, Lindley and Macreight]: the principal habitat is also added (except in the case of the rarer plants, where localities are given instead), and a sufficient blank space is left for the insertion of the customary memoranda of time, place, and collector's name.

"As each plant has one or more labels assigned to it whenever the writers above-mentioned differ in their nomenclature, all will be able to select that of their favorite text-book, while the synonyms attached will show the arrangement adopted by the other three authorities, and thus, to the less advanced student, tend in some degree to increase the facilities of botanical intercourse."

ART. XXXIX.— *Varieties.*

76. *Note on the Genus Tilia.* There is, I think, a misapprehension on the part of the writer in No. 5 of 'The Phytologist' (p. 79), as to my remarks on the Lime. The fact is, about two years ago I sent to the Botanical Society of London, a paper on the British species of the genus *Tilia* (lime-tree), which perhaps he heard read. Since that time the Society have published no Transactions, and consequently my paper has not appeared, and I am not aware that any abstract of it was ever printed in the 'Magazine of Natural History,' or elsewhere; except that I also communicated to Mr. Loudon, for his 'Arboretum Britannicum,' the fact of a large wood, of more than five hundred acres in extent, existing in Worcestershire, where, strange to say, the greater part of the *underwood*, regularly cut down at stated intervals, consists of *Tilia parvifolia*: thus, I should say, removing any doubt, if any could exist, of the indigenoussness of this tree, as far as England is concerned. My paper, however, went to show that *T. grandifolia* was also indigenous, and that *T. europæa* was to be included under *T. grandifolia* as a form. Numerous localities were named, and old individual trees adverted to. I also descanted on the natural history of the lime, and contended (at least as far as that tree was concerned) that the *honey-dew* was really an exudation of its saccharine juices, and had nothing to do with the Aphides. I see a very interesting anecdote of Mr. Luxford's is opposed to me as respects another tree (Entomol. No. 90); but the fact really is, that as in the old nursery tale of the shield that was gold on one side and silver on the other, so with the honey-dew. In some cases the Aphides cause it, and in others, at a particular temperature, it exudes from the leaves without their agency. The latter is certainly the case with the lime at any rate.—*Edwin Lees; South Cottage, Malvern Wells, October 4, 1841.*

77. *Veronica montana*, (Phytol. 70). This is always included in lists of rare plants, wherefore I cannot tell, unless that it is passed over for *Ver. Chamædryas*, and consequently esteemed a treasure when accident brings it prominently before the notice of the botanist. It grows plentifully in all the woods and shady dells and dingles in the neighbourhood of Bristol; nor is it less frequent about Manchester, where I have seen it in every locality favourable to its taste for moisture and seclusion. Mere Clough, Agecroft Clough, Boghart-hole Clough, Ouse-end Clough, &c., produce it in abundance.—*L. H. Grindon; Manchester, October 20, 1841.*

78. *Astrantia major*. This plant was, in 1840, discovered by Mr. D^r. Sharpe in the wood above Stokesay Castle, Shropshire, "in plenty." Mr. Borrer this summer examined the wood, which is extensive, and found four large patches of it along the little-frequented path at the upper edge of the wood, and one a little off from the path, near one of the four. It had every appearance of being quite wild, and the locality did not favour the idea of an accidental escape from cultivation. Possibly, however, it may have been sown there; and perhaps some of your correspondents may be able to clear up this doubt, as well as to inform us whether it occurs dispersedly over the wood.—*W. A. Leighton; Shrewsbury, November 1, 1841.*

79. *Silene nutans*. In answer to your correspondent (Phytol. 91), I beg leave to state that to the best of my knowledge *Silene nutans* grew on Nottingham Castle-rock previously to the castle being burnt, sparingly, as it does at present; but since that event in 1830, it has established itself on the walls, in the crevices between the stones and in fact in every place where it is possible for a plant to vegetate.—*Joseph Sidebotham; Manchester, November 4, 1841.*

ART. XL.—*Proceedings of Societies.*

LINNEAN SOCIETY.

November 2, 1841.—The Lord Bishop of Norwich, President, in the chair. The following donations were announced. Nearly 1000 species of plants collected in Riakhy, Piauhy and Goyaz, by Mr. Gardner. Specimens of *Gnaphalium margaritaceum* and of a peculiar form of *Linaria repens* from the west of Ireland, by Mr. Hinckes. A collection of dried plants from the West Indies and Madeira, by Lord Dartmouth. Mr. Ingen exhibited a myrtle growing in a glass cylinder carefully sealed. A letter from M. Alphonse DeCandolle, announcing the death of his father, was read.

BOTANICAL SOCIETY OF LONDON.

November 5.—Hewett Cottrell Watson, Esq., F.L.S., Vice-President, in the Chair. Donations to the library were announced from the Botanical Society of Edinburgh, the West Riding Geological Society, the Portsmouth Philosophical Society, the Lancaster Natural-History Society, Mr. Thwaites, Mr. Lees and The Rev. I. Sansom. Mr. G. Knapp presented some grasses and mosses from Fernando Po; and British plants were announced as having been received from Mr. Thwaites, Mr. Croall, Mr. Brown, Mr. Fordham, Mr. Simpson, Mr. Lees and Mr. Bidwell. Mr. H. O. Stephens of Bristol presented thirty-three species of British Fungi.

A paper was read from Mr. G. H. K. Thwaites, on *Polystichum aculeatum* and *Pol. lobatum*. The author observes that owing to the difference of opinion entertained respecting these ferns by botanists of celebrity—some considering them two distinct species, and others that they are merely varieties of one—any facts tending to bring to light their real character must be interesting; and therefore he has much gratification in making known a peculiarity of structure exhibited by each, whereby he considers all doubt as to their being distinct species will be removed.

The two ferns, in their typical form, differ very materially from each other; and their differences have been well described by those who have written on the subject. But almost all, if not the whole of the characters which have been set down as distinctive, are liable to be so extremely modified by different degrees of altitude, moisture, light, exposure &c. of situation, that an unpractised eye would often be quite unable to determine the species of these closely-allied plants, whence, questionless, has arisen the doubt as to their separate specific individuality. Thus, *Polystichum lobatum*, upon an elevated situation, possesses a lanceolate frond, generally very close and compact; its pinnae overlapping each other; occasionally, however, these are distant from each other to almost the extent of their width, and the pinnule are more separated, so that the plant much resembles *P. aculeatum*. But *P. lobatum*, when growing in a low situation, is still more like *P. aculeatum*; its fronds, instead of being lanceolate, inclining more to ovate, its pinnule also are not merely serrated, but become slightly pinnatifid, indeed the plant can with difficulty be identified. These facts, and several others which might be adduced, show the slight value, in this genus, of characters derived from the outline of the frond or of the pinnae and pinnule, which are all so liable to vary in this particular: it was therefore very desirable to endeavour to find some more constant character by which these kindred species, if they proved species, might be distinguished one from the other; and after many hours spent in diligent examination of a great number of fronds, the author discovered a difference of venation in the two species, which he thus describes.

"In examining the fronds of *P. aculeatum*, it may be noticed that the veins which bear these are not continued, like the rest of the veins, to the edge of the pinnule, but each terminates either at its mass of thecae, or at a very little distance beyond it. The same thing is not observable in *P. lobatum* (when mature), for the corresponding veins in this are each continued through its mass of thecae to the very edge of the pinnule, and even in the fronds of immature plants of this species, when there is but little fructification, the same character is perceptible in the pinnule nearest the base of the pinna and of the frond—the parts which in ferns exhibit most strikingly all the characters of maturity: in a few of the terminal pinnule some of these veins do not reach the edge. It must not be concealed that in *P. aculeatum*, in an extremely few instances (being just what might be expected) is a slight indication discoverable of a theciferous vein being continued to the edge of the pinnule; but in this the appearance is very different to the decided character observable in *P. lobatum*."—G. E. D.

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ART. XLI.—*A Botanical Excursion in Teesdale, in July, 1840.*

By SAMUEL KING, Esq.

Lane House, Luddenden, near Halifax,

SIR,

October 20, 1841.

Taking it for granted that any communication respecting plants will be acceptable for your periodical, I take the liberty of sending a short account of a botanical excursion in Teesdale in July, 1840. If you think it worth printing it is quite at your service.

Yours &c.

SAMUEL KING.

To the Editor of 'The Phytologist.'

ON the 20th of July my companion and myself left Darlington for Barnard Castle, a distance of sixteen miles. The common hedge-plants of this neighbourhood are *Ballota nigra*, *Lamium album*, *Bryonia dioica*, *Potentilla reptans* and *anserina*, *Cynoglossum officinale*, *Lycopsis arvensis*, *Hordeum murinum*, *Conium maculatum*, *Reseda luteola*, *Chærophyllum temulentum*, *Lychnis vespertina*, &c. We arrived at Barnard Castle about 11 o'clock, and proceeded to Cotherston (a distance of four miles), where we commenced our work by going up Balderdale in search of the rare *Saxifraga Hirculus*: as we went on we observed *Cnicus heterophyllus*, *Ribes petraum*, *Geranium sylvaticum*, &c. After walking about four miles we arrived at Hurry; here we learned that a person named Joseph Raine, who resided at a farm-house called East Waybut, knew something about the plant we were in search of. At about a mile farther on we came to the house and found the man, who readily undertook to conduct us to the spot where the *Saxifraga* was growing: he knew the plant well, and gave us two specimens which he happened to have by him. When we had gone about two miles farther up the valley, which is wild and barren, we crossed the water and got on the edge of Cotherston Fell, about half a mile below the junction of the Black Beck and Balder Beck: here we found plenty of *Saxifraga Hirculus* growing among moss in a wet swampy place, in company with *Sedum villosum*, but being too early in the season, we could obtain but two plants in flower. We then returned to the house of our guide, and wrote our addresses with a quill pen upwards of twenty years old; in the following August our guide collected for me a number of specimens of the *Saxifraga*, and transmitted them by post. On leaving our guide's house he directed us over the fells to Middleton in Teesdale, about six miles distant; but in consequence of losing our road on the fells, we did not arrive there until late.

Next morning, accompanied by Mr. Thompson, the landlord of the Talbot Inn, we started for High Force Inn, distant five miles, calling in our way at New Bigging. Thence we passed over the fields to Winch Bridge, where the Tees is crossed by a foot bridge. Here the troubled stream of the Tees is confined by rocks, upon which, and on the adjoining ground, grow *Serratula tinctoria*, *Cnicus heterophyllus*, *Galium*

boreale, *Rubus saxatilis*, *Potentilla fruticosa*, *Melampyrum sylvaticum*, *Polygonum viviparum*, *Plantago maritima*, *Geranium sylvaticum*, *Festuca vivipara*, *Primula farinosa*, *Pyrus Aria*, *Trollius europæus*, *Rosa Sabini* and *involuta*, and some other species which require more examination in a growing state. I do not find any record of this locality for the two roses here mentioned, which I discovered here, on the Yorkshire side of the Tees. The latter is said to grow in the Hebrides and Western Highlands of Scotland, but as far as my knowledge extends, this is the first time of its having been gathered south of the Tweed. One old plant was all that I found at the time, a sucker from which is now growing freely in my garden. I am inclined to think that *Rosa Doniana* of Smith grows freely in the same place. This spot is about a mile from High Force Inn. In the afternoon we visited High Force, which was an awfully grand sight, the river being much swollen by the heavy rains. We here observed plenty of *Cnicus heterophyllus*, *Brachypodium pinnatum*, &c.

The morning of July 22nd being fine, we set out, with Mr. Scott the landlord for our guide, he being well acquainted with the localities of all the rare plants of the neighbourhood. We proceeded by way of Whey Syke, crossed Langdon Beck, and so on to Widdy Bank, where we gathered *Bartsia alpina*, *Gentiana verna* (in seed), *Carex capillaris*, *Equisetum variegatum*, *Parnassia palustris*, *Tofieldia palustris*, *Saxifraga aizoides*, *Lycopodium Selaginoides*, &c. Widdy Bank being an extensive tract it will be necessary to say that the place where we gathered the above plants was the sloping bank of the Tees, in Widdy-Bank Farm. From this spot we proceeded to Falcon Clinks; here grow *Lycopodium Selago*, *Cryptogramma crispa*, *Asplenium Trichomanes*, *viride* and *Ruta-muraria*, *Sedum Telephium*, *Vaccinium Vitis-idaea* and *Juniperus communis*, in great abundance. Here I cast around many an anxious look for *Woodsia Ilvensis*; at length, after much searching, and a good wetting from the drip of the water from the huge basaltic rocks, to my great joy I espied two small plants, which were instantly secured; a little farther on we saw three more under a bush of *Prunus Padus*, but not liking to destroy the plant, we left the roots of these in the crevice of the rock where they were growing. After resting awhile under the Clinks, I had another round at searching for this wee fern, but without success, so I was obliged to leave the spot with an impression that one day or other it would be extinct there. As we passed along I observed plenty of what I then called *Asplenium viride*, but not wanting that plant I did not gather any, it now however strikes me forcibly that among this was *Asplenium fontanum* also. A few hundred yards above the last-mentioned locality is Caldron Snout. This is a place where the Tees, which above here runs on a level, now rushes with tremendous fury down among rocks for I should think not less than a hundred yards. Over the Snout is a narrow wooden bridge, connecting the counties of Durham and Westmoreland, which we crossed, and in traversing the extreme point of the latter county, found *Ajuga alpina*? *Habenaria viridis*, *Gentiana campestris* &c. We then forded the swollen Maize Beck into Yorkshire, and obtained a fine view of the Snout. Passing along we gathered *Sedum villousum*, *Saxifraga hypnoides*, *Rubus Chamæmorus* &c. At length we reached the summit of Cronkley Fell, and there we gathered *Lycopodium alpinum*, *Dryas octopetala*, *Cistus marifolius* and *Helianthemum*, *Carex capillaris* and *pulicaris*, *Tofieldia palustris*, *Arenaria verna*, *Gentiana verna*, *Thalictrum alpinum*, *Anthyllis vulneraria*, *Aira cristata*, *Hippocrepis comosa*, *Thymus Serpyllum*, &c. Pursuing our course towards Cronkley Bridge, we gathered *Carex binervis*, *Avena pratensis* and *pubescens*, and *Habenaria viridis*; we then recrossed the Tees to the Durham side, when our guide

left us, taking the nearest road home, and we went down the valley, where *Potentilla fruticosa* and other plants grow in abundance. For more than a mile we were almost lost in juniper bushes, with the river on our right hand and high cliffs on our left: here we found *Arbutus Uva-ursi*. When we again reached High Force we gathered *Festuca vivipara* and *Avena alpina*? on the rocks; this is another place where the river falls twenty or thirty yards down the rocks, which are here, as in other parts of Teesdale, gloriously painted with *Lecidea geographica*.

The next day we returned homewards, well laden with plants; visited the lead-mines at Middleton, fourteen miles from Brough. At Church-Brough Castle gathered *Trifolium procumbens*, *Carduus acanthoides* and *Conium maculatum*. Here we had to wait five hours before the coach came up from Barnard Castle to take us to Kirby Lonsdale. We had scarcely taken our seats when the horses started off without guard or coachman, and upset the coach on a bridge; I was so much injured as to be quite incapable of making further observations, and thus ended my botanical excursion in Teesdale.

ART. XLII. — *List of Plants collected by M. Schimper in Abyssinia.*
By N. B. WARD, Esq.

Wellclose Square, October 20, 1841.

My dear Sir,

Among the numerous collections of plants made by the *Unio Itineraria*, there are few that equal, and none that surpass in interest, the collection made by Schimper in Abyssinia. The portion which has reached this country contains about 300 species, mostly procured in the neighbourhood of Adowa; an enumeration of which I send you, as I think it will gratify the readers of 'The Phytologist.'

I have marked with an * the few species which are also natives of Britain.

And am,

My dear Sir,

Your's very truly,

N. B. WARD.

To the Editor of 'The Phytologist.'

<i>Ranunculaceæ.</i>	<i>Cissus Schimper</i>	<i>Sapindaceæ.</i>
<i>Clematis simensis</i>	<i>Vitis erythrodes</i>	<i>Dodonæa arabica</i>
<i>glaucescens</i>	<i>Myrtaceæ.</i>	<i>Polygalaceæ.</i>
<i>Delphinium dasycaulon</i>	<i>Syzygium guineëse</i>	<i>Polygala punctulata</i>
<i>Umbelliferæ.</i>	<i>Loranthaceæ.</i>	<i>Linaceæ.</i>
<i>Hydrocotyle asiatica</i>	<i>Viscum nervosum</i>	<i>Linum abyssinicum</i>
* <i>Sium nodiflorum</i>	<i>Loranthus Schimper</i>	<i>Sterculiaceæ.</i>
<i>Anethum graveolens</i>	(No. 250)	<i>Xeropetalum Brucei</i> . Pen-
<i>Caucalis abyssinica</i>	<i>Cucurbitaceæ.</i>	tapetes. Bruce, Tr.
<i>Tragium hirtellum</i>	<i>Momordica pterocarpa</i>	v. pl. 2.
<i>Ammi pauciradiatum</i>	<i>Bryonia scrobiculata</i>	<i>Malvaceæ.</i>
<i>Torilis africana</i>	<i>Resedaceæ.</i>	<i>Pavonia Schimperiana</i>
<i>Vitaceæ.</i>	<i>Reseda abyssinica</i>	<i>Sida triloba</i>
<i>Cissus adenantha</i>		<i>tricuspis</i>

- Sida Schimperiana*
Urena mollis
Hibiscus macranthus
(Polychlæna) *adoënsis*
Tiliaceæ.
Grewia ferruginea
Sparmannia abyssinica
Triumfetta Vahlil
Lythraceæ.
Grislea micropetala
Meliaceæ.
Turræa abyssinica
Trichilia Rüppelliana
Rhamnaceæ.
Halinus mystacinus
Zizyphus Spina-Christi
Euphorbiaceæ.
Clutia lanceolata
Rottlera Schimper
Tragia cordata
Euphorbia depauperata
(No. 274)
Celastraceæ.
Celastrus edulis
obovata
Schimper
Celastr. sub-or. Hippocrateæ.
Hippocrateæ Schimperiana
Silenaceæ.
Silene (No. 290)
Uibelinia abyssinica
Alsineaceæ.
Alsine Schimper
Illecebraceæ.
**Polycarpon tetraphyllum*
Xanthoxylaceæ.
Brucea antidysenterica
Geraniaceæ. [atum
Pelargonium multibracte-
Oxalideæ.
Oxalis (No. 188)
Rosaceæ.
Rosa Schimperiana
Leguminosæ.
Virgilia aurea
Crotalaria spinosa
Trigonella marginata
Schimper
- Trigonella multinervis*
Trifolium subrotundum
simense
Indigofera parvula
(No. 349)
Glycine micrantha
elegans
Tephrosia interrupta
Sesbania ferruginea
Colutea (No. 240)
Ornithopus coriandrinus
Zornia angustifolia
Alysicarpus ferrugineus
**Vicia angustifolia*
Fagelia resinosa
Dolichos (No. 226)
Phaseolus (No. 50)
Pterolobium lacerans
Cassia nictitans
(No. 29)
Mimosa Habbas
Acacia Lahai
Isenbergiana
albida
Crassulaceæ.
Tillæa pharnaseoides
Sempervivum abyssinicum
Cotyledon deficiens
Anacardiaceæ.
Rhus
(No. 331)
Anamaza trifoliata
Urticaceæ.
Ficus (No. 373)
(No. 157)
(No. 149)
Urtica (No. 74)
Santalaceæ.
Thesium radicans
Osyris abyssinica
Amarantaceæ.
Amaranthus (No. 359)
Celosia adoënsis
Pupalia globosa
Schimperiana
Phytolaccaceæ.
Phytolacca abyssinica
- Polygonaceæ.*
Polygonum macrochæton
salicifolium
herniarioides
(*Fagopyrum*) *nepalense*
Rumex abyssinicus
alismæfolius
Steudelii
Ceratogonum sinuatum
Scleranthaceæ.
* *Scleranthus annuus*, var.
[abyssinicus
Nyctaginaceæ.
Boerhaavia (No. 48)
Ericaceæ.
Erica acropyza, Fresen.
ab E. arborea vix
diversa
Primulaceæ.
Lysimachia adoënsis
Myrsinaceæ.
Myrsine africana
Kellian
Mæsa (*Bœolotrys*) *picta*
Sapotaceæ.
Mimusops Kummel
Convolvulaceæ.
Convolvulus echinoides
Campanulaceæ.
Campanula rigidipila
Lightfootia abyssinica
Cephalostigma Schimper
Cinchonaceæ.
Pavetta longiflora
Oldenlandia (No. 68)
Rubia cordifolia
Anthospermum (No. 94)
Kohautia (No. 75)
Compositæ.
Vernonia Schimper
abyssinica
Cyanopsis Leopoldi
Sphæranthus indicus
Dicrocephala abyssinica
Conyza abyssinica
Schimper
gnaphalioides
baccharioides

Phagmalion abyssinicum	<i>Boragineæ.</i>	Buddleia polystachya [um
Laggera (Blumea) tomentosa	†Trichoderma africanum	Craterostigma plantagine-
purpurascens [tosa	Anchusa affinis	<i>Solanaceæ.</i>
crassifolia	Cynoglossum lanceolatum	Solanum adoëense
Gnizottia oleifera	<i>Labiatae.</i>	bifurcum
Schultzii	Salvia abyssinica	<i>Apocynaceæ.</i>
Bidens abyssinica	scabra	Strychnos abyssinica
Spilanthes abyssinica	Mitracarpus sphærostigma	Carissa edulis
Cotula abyssinica	*Mentha Pulegium	<i>Asclepiadeæ.</i>
Helichrysum abyssinicum	(No. 403)	Periploca linearis
Achyrocline Schimperi	Otostegia repanda	Kanahia laniflora
Gnaphalium Unionis	integrifolia	<i>Oleaceæ.</i>
(Helichrysum) Steudelii	Leonotis nepetifolia	Nathusia alata
Cineraria abyssinica	Micromeria ovata	<i>Jasmineæ.</i>
Schimperi	Ocimum lamiifolium	Jasminum abyssinicum
Senecio abyssinicus	coloratum	—
Hochstetteri	filamentosum	<i>Amaryllidaceæ.</i>
Schimperi	(No. 294)	Hypoxis abyssinica
Tripteris cheiranthifolia	(No. 309)	<i>Irideæ.</i>
Kentrophyllum alatum β,	(No. 333)	Montbrettia abyssinica
[abyssinicum	Leucas Schimperi	<i>Liliaceæ.</i>
Carthamus tinctorius	Ajuga (No. 325)	Asphodelus Chamæmoly
Gerbera abyssinica	<i>Verbenaceæ.</i>	Asparagus
(Leptica) Schimperi	*Verbena officinalis	<i>Commelinaceæ.</i>
Schmidtia (Tolpis) abyssinica	<i>Bignoniaceæ.</i>	Commelina striata
Klenzea abyssinica [nica	Bignonia discolor	<i>Junceaæ.</i>
Adenostemma Schimperi	<i>Acanthaceæ.</i>	Juncus Schimperi
Chelinsia abyssinica	Barleria pumila	<i>Fluviales.</i>
Prestinaria bidentoides	bispinosa	*Potamogeton natans
abyssinica	abyssinica	<i>Gramina.</i>
Wurschmittia abyssinica	inæqualis	Phalaris appendiculata
Steugelia adoënsis	Justicia calcarata	Tricholœna (Eriochloa)
Linzia vernonoides	Ruellia multicaulis	[grandiflora
<i>Dipsacæ.</i>	Asteracantha macracantha	Eriochloa purpurascens
*Scabiosa Columbaria	Hypoëstes glandulosa	Panicum semiundatum
Pterocephalus frutescens	Gendarussa (Adhatoda)	patens
<i>Plantagineæ.</i>	[Schimperiana	ternatum
Plantago rugosa	<i>Scrophularineæ.</i>	geminatum
abyssinica	*Antirrhinum Orontium	quadrifarium
<i>Plumbagineæ.</i>	*Linaria Elatine	brizanthum
Valoradia abyssinica	Anarrhinum fruticosum	uniglume
<i>Cordiaceæ.</i>	Bartsia abyssinica	(Digitaria) muticum
Cordia abyssinica	Buchnera Schimperiana	fenestratum

† I was induced, by the name of this plant, to examine the cuticle of the leaf under the microscope, and found it a most beautiful object, the cuticle being covered with hairs, surrounded at their base with pearl-like bodies. The same arrangement is seen in *Onosma tauricum*, and doubtless in many other *Boragineæ*.—*N. B. W.*

<i>Panicum</i> (Digit) abyssini-	<i>Eleusine multiflora</i>	<i>Cyperus flagellatus</i>
<i>Pennisetum riparium</i> [cum	<i>flaccifolia</i> [Roxb.?	<i>dichroostachyus</i>
<i>riparioides</i>	Tocusso, Fres. stricta,	<i>adoënsis</i>
<i>longistylum</i>	<i>Leptochloa setacea</i>	<i>abyssinicus</i>
<i>pentastachyum</i> , Hoch.	<i>Danthonia Köstlini</i>	<i>Fischerianus</i>
(v. si mavis n. g. Pen-	<i>elongata</i>	(No. 75)
<i>tastachya abyssinica</i>)	<i>abyssinica</i>	(No. 273)
<i>Gymnothrix glabra</i>	<i>Triticum</i> (Brachypodium)	<i>Mariscus Schimper</i>
<i>Schimperi</i>	<i>Schimperi</i>	<i>Fimbristylis complanata</i>
<i>Andropogon connatus</i>	<i>Poa abyssinica</i>	<i>Isolepis</i> (Bulbostylis)
<i>polyatherus</i>	<i>Eragrostis tenuifolia</i>	[Schimperiana
<i>Schimperi</i>	<i>longifolia</i>	<i>Scirpus brachycerus</i>
<i>insculptus</i>	<i>Catabrosa micrantha</i>	<i>Rhynchospora trigyna</i> ,
<i>abyssinicus</i>	<i>Festuca abyssinica</i>	Hochst. (vel si mavis
<i>Anthistiria punctata</i>	<i>Beckera polystachya</i> , Fres.	<i>novum genus</i> , Erio-
<i>Sporobolus capensis</i>	<i>Bromus adoënsis</i>	<i>spora abyssinica</i>)
<i>Aristida cærulescens</i>	† <i>Londetia elegans</i>	<i>Scleria cenchroides</i>
<i>Pappophorum Schimper</i> -	† <i>Hypudæurus cenchroides</i>	<i>Carex echinochloë</i>
<i>Chloris abyssinica</i> [num	† <i>Psilopogon Schimper</i>	<i>Filices.</i>
<i>Setaria aurea</i>	† <i>Harpachne Schimper</i>	<i>Gymnogramma leptophylla</i>
<i>glaucia</i>	† <i>Triachyrum adoëse</i>	<i>Adiantum thalictroides</i>
<i>dioica</i>	<i>Cyperaceæ.</i>	<i>Nephrodium Schimper</i> -
<i>Michrochloa abyssinica</i>	<i>Cyperus rotundus</i>	<i>Musci.</i> [num
<i>Dactyloctenium aristatum</i>	* <i>longus</i>	* <i>Entosthodon Templetoni</i>

† Nova genera, Hochstetter.

ART. XLIII.—*A List of Plants met with in the neighbourhood of Swansea, Glamorganshire.* By J. W. G. GUTCH, Esq.

(Continued from p. 109.)

Spiræa Ulmaria.

Cerasus Padus. At Pont Nedd Vechn, but not so common as it is about Merthyr Tydfil, (Dillwyn).

Rubus horridus. Fabian's Bay. (*R. horridus* of the Swedes, S. Rootsey).

— *saxatilis.* On the mountains about Pont Nedd Vechn and Ystradgunlais.

Potentilla anserina. Common, Pentlegare.

— *verna.* Found by Mr. Woods above the cliffs between Port Eynon and the Worm's Head, (Dillwyn).

— *reptans.* Common.

— *Fragariastrum.*

— *Comarum.* Singleton Marsh, Cromlyn Bog and Pentlegare.

— *Tormentilla.* Common in hedge-rows.

— *β. nemoralis.* Occasionally found on wastes about Lansamlet, Cadoxton, &c. I have seen flowers with 4, and others with 5 petals, both on this and the more common form of the species.

Agrimonia Eupatoria. Common by road-sides.

Rosa spinosissima. On the Mumbles Road, very abundant.

— *canina*, γ. (*R. surculosa*, Woods). When my friend Mr. Woods was with me on a visit at Pentlegare, this was the only one of his numerous species which he appeared to consider rare, and he found it plentiful in Gower, and on the banks of the Penclawd Canal. Besides *Rosa canina* and *tomentosa*, there are other wild roses in the neighbourhood, but I confess my inability to distinguish from each other many of the species which my friend has described, and I know not which, or whether either of them, is entitled to a place among the British rarities.— (Dillwyn).

— *systyla*.

Alchemilla vulgaris and *arvensis*. Common.

Crataegus Oxyacantha. Mumbles Road.

Pyrus Malus.

— *torminalis*. Woods in Neath valley, and about Britton Ferry and Penrice.— (Dillwyn).

— *Aria*. Woods in Neath valley, (Dillwyn).

— *aucuparia*. Llandwr Marsh.

Ribes alpinum. Mr. Mulne, who was formerly head gardener to the late Lord Cawdor, has informed me that this plant propagates itself freely in the woods at Golden Grove, and is rarely cultivated in gardens, (Dillwyn).

Epilobium hirsutum. Cromlyn bog.

— *parviflorum*, *roseum* and *tetragonum*. Banks of the Neath Canal, near Port Tennant.

— *montanum*. Between Swansea and Port Tennant.

Circaea lutetiana. Hedges near Kilvey Hill; Singleton; common in shady places.

Myriophyllum spicatum. Cromlyn Bog.

Hippuris vulgaris. Marsh near Neath Canal.

Daucus Carota. Kilvey Hill.

— *maritima*. Pennard; Gower.

Torilis Anthriscus. Kilvey Hill.

Angelica sylvestris. Kilvey Hill.

Crithmum maritimum. Rocks along the coast.

Enanthe fistulosa. Near Singleton on the Marsh.

— *pimpinelloides*. By the river-side on Llandwr Marsh.

— *crocata*. Near Kilvey Hill.

Bunium flexuosum. Near Singleton.

Pimpinella Saxifraga. Town Hill.

Helosciadium nodiflorum. Near Singleton.

Carum verticillatum. Abundant in moist pastures near Cwmbola Bridge, Pentlegare, Drymma, and elsewhere throughout the neighbourhood.

Apium graveolens. Marshy places near the Neath Canal; Singleton and Port Tennant.

Charophyllum temulentum. Fields near Singleton and Mumbles Road.

Conium maculatum. In hedges near the Infirmary, common.

Eryngium maritimum. On the sand-hills opposite Cambrian Terrace, Swansea; Cromlyn Burrows and Singleton.

Hydrocotyle vulgaris. Near Port Tennant.

Galium cruciatum. Fabian's Bay.

- Galium palustre*. Near Singleton Marsh.
 ——— *saxatile*. Kilvey.
 ——— *verum*. Found everywhere.
 ——— *Mollugo*. Common.
 ——— *Aparine*. Between the Ferry and Port Tennant.
Asperula odorata. Near Port Tennant and Cline wood.
 ——— *Cynanchica*. Between Swansea and Neath; also most abundant on the sand hills near Park, about 10 miles from Swansea; about Pennard Castle.
Rubia peregrina. Occasionally found about the cliffs, and on the Gower coast.
Cornus sanguinea. Near Port Tennant.
Vaccinium Oxycoccus. Pentlegare; and the field opposite the kennel of the Swansea harriers.
Campanula rotundifolia. Kilvey and Town Hills; and in great luxuriance, with particularly large flowers, on the sand hills near Pennard Castle.
 ——— *hederacea*. Not unfrequent in moist shady places in the Swansea and Neath valleys, in Cwm Clydach, (Dillwyn).
Jasione montana. Road leading to Kilvey Hill.
Lobelia Dortmanna. In the lake in Craig-dyn-fwr, above Aberpergwm, (Dillwyn).
Valerianella Auricula. Fabian's Bay.
 ——— *dentata*. Found by Mr. E. Hawkins at Glanbedue, (Dillwyn).
Dipsacus sylvestris. Banks of the Neath Canal, Fabian's Bay.
Scabiosa succisa. Kilvey Hill and Cline Wood.
 ——— *columbaria*. Pennard Castle.
Knautia arvensis. Port Tennant.
Eupatorium cannabinum. Common in wet ditches.
Inula crithmoides. Pennard and Mumbles; on rocks in Caswell Bay, and along the coast of Gower; plentiful near Paviland Cave.
 ——— *Helenium*. In pastures about Horton, Pentlegare, Pont nedd Vechn, Glanbrane and Cwm Cromlyn, (Dillwyn).
Pulicaria dysenterica. Between Swansea and Singleton; Kilvey Hill and road to the Mumbles.
Aster Tripolium. Marsh near Neath Canal.
Erigeron acris. Near the Ferry; Llandwr Marsh; Fabian's Bay; Singleton.
Solidago Virgaurea, var. *β. cambrica*. Frequently met with in the woods of Cwm Neath.
Gnaphalium margaritaceum. Near Clydach, in the road-side between Wych-tree Bridge and Neath Abbey, and other places, (Dillwyn).
 ——— *dioicum*. On the mountains above Pont Nedd Vechn and Ystradgunlais, (Dillwyn).
 ——— *sylvaticum*. About Drumma and Glanbrane, and on Markhowell, from which mountain it was brought to me by Mr. Edward Hawkins. Many of the specimens answered to Sowerby's figure of *G. rectum*, and if that is a separate species (which I disbelieve) they most probably belong to it, (Dillwyn).
 ——— *uliginosum*. On Singleton Marsh.
Senecio vulgaris. Everywhere.
 ——— *viscosus*. On the waste a little above high water mark, between the Ferry and the entrance to Port Tennant.
 ——— *Jacobaea* and *aquaticus*. Singleton Marsh.
Chrysanthemum Leucanthemum. Between the Ferry and Port Tennant.

- Chrysanthemum segetum*. Ballast-heap near West Pier.
Pyrethrum Parthenium. Neath Canal and St. Helen's.
 ——— *inodorum*. Common.
 ——— ——— var. *β. maritimum*. About Salt-house Point, and other places
 by the sea-shore, (Dillwyn).
Artemisia maritima. Near Port Tennant, and on the banks of the Neath Canal.
 ——— *Absinthium* and *vulgaris*. Near Port Tennant, on the shore and near the
 Ferry.
Tanacetum vulgare. Port Tennant.
Anthemis maritima. Sea-shore near Port Tennant.
 ——— *nobilis*. On rubbish at Penrice, but probably not indigenous, (Dillwyn).
 ——— *arvensis*. Common everywhere.
Achillea Ptarmica. Banks of Neath Canal; Mumbles Road; near Port Tennant;
 in ditches by canal.
 ——— *Millefolium*. Common everywhere.
Bidens tripartita. Near the Neath Canal.
 ——— *cernua*. Near Singleton.
Carduus nutans. Singleton.
 ——— *tenuiflorus* and *arvensis*. Common.
 ——— *lanceolatus*. Between the Infirmary and Singleton.
 ——— *palustris*. Kilvey Hill and Loughor, common.
 ——— *eriphorus*. Occasionally found on the road-side between Neath and Pyle;
 and much more common at the eastern extremity of the county, (Dillwyn).
 ——— *pratensis*. Cromlyn Bog.
 ——— *acaulis*. Britton Ferry.
Carlina vulgaris. Banks of the Neath Canal, and Cromlyn Burrows.
Arctium Lappa and *Bardana*. Common.
 ——— *superfluum*. A variety of *Bardana*, so named by my friend Mr. Rootsey; be-
 tween the Ferry and Port Tennant.
Serratula tinctoria.
Centaurea nigra. Kilvey Hill and Town Hill.
 ——— *Scabiosa*. Kilvey Hill and fields near.
Lactuca virosa. Oystermouth Castle.
Lapsana communis. Near Singleton.
Crepis virens. Town Hill and roofs of houses.
 ——— *paludosa*. On the rocky shore of the Neath river, and about Uscoed Eynon,
 near Pont Nedd Vechn, (Dillwyn).
Hieracium Pilosella. Near Port Tennant.
 ——— *sylvaticum* and *sabaudum*. Kilvey Hill.
 ——— *umbellatum*. Neath Canal.
Hypochaeris radicata. Neath Canal.
Tragopogon pratensis. Singleton Marsh.
Thrinicia hirta. Near Port Tennant.
Leontodon hispidum. A meadow-full of it on this side of Neath.
Oporinia autumnalis. Meadows and pastures, frequent.
Cichorium Intybus. Near Kilvey Hill.

J. W. G. GUTCH.

(To be continued).

ART. XLIV. — *Notices of Books &c. connected with British Botany.*

1. *A Manual of the British Algæ: containing Generic and Specific Descriptions of all the known British Species of Sea-Weeds and of Conservæ, both Marine and Fresh-water.* By THE HON. WILLIAM HENRY HARVEY. London: Van Voorst. 1841. 8vo.

THE beautiful family of plants known by the popular name of *sea-weeds*, has long excited the admiration not only of the mere sea-side rambler, but of many profound botanists. The names of Esper, Lamouroux, Mertens, Agardh, Lyngbye, Kützting and others on the continent; and of Stackhouse, Turner, Dillwyn, Hutchins, Griffiths, Berkeley, Greville and Harvey in our own country; are especially associated with these plants. It is, however, only within the present century that the algological Flora can be said to have assumed a strictly systematic form. The structure and affinities of the Algæ have, within this period, been carefully examined, their economy investigated, and their geographical position ascertained. The four great genera—*Tremella*, *Fucus*, *Ulva* and *Conserva*, into which Linnæus divided the comparatively few species he was acquainted with, have expanded, in the British Flora alone, into 127 for the most part well-defined genera; and a rigid analysis is at length applied to these as well as to other plants. In Great Britain, as might have been expected from the facilities which her shores present to the student, several works of standard merit have been devoted to their illustration. 'English Botany' contains figures (deficient in details) of all the species known at the time of its publication. The splendid 'Historia Fucorum' of Turner includes all the British species formerly described under the heterogeneous genus *Fucus*; and Dillwyn's 'Synopsis of the British Conservæ' contains illustrations of the equally heterogeneous *Conserva*; while in the 'Algæ Britannicæ' of Greville are given figures and analyses of the modern genera of the inarticulate tribes. Various species are also represented in the same author's 'Cryptogamic Flora'; and lastly, in point of time, Berkeley's 'Gleanings' illustrate many others belonging to the more minute and difficult groups. It was not, however, until the publication of the second volume of the 'British Flora' in 1833, that the whole of the British Algæ were brought together and described with methodical accuracy by Mr. Harvey, with the exception alone of the Diatomaceæ, which were contributed by Dr. Greville. Three years subsequently, the entire algological department of the 'Flora Hibernica' was executed in a most able manner by Mr. Harvey, and particular attention bestowed on some of the difficult genera, especially *Callithamnion* and *Polysiphonia*. One other work of eminent utility remains to be mentioned—the 'Algæ Danmonienses' of Mrs. Wyatt (under the superintendence of Mrs. Griffiths), on the plan of that beautiful collection, 'Algues de la Normandie, par J. Chauvin'; but of this publication, as well as of his views regarding the work immediately under consideration, we shall let our estimable author speak for himself.

"The want of a work in the English language, entirely devoted to the British Algæ, in which fuller descriptions should be given than the scope of Hooker's 'British Flora' admitted of, and in which all the known species should be included, has long been felt by lovers of this branch of Botany. Had my friend Dr. Greville completed, as was once his intention, his admirable 'Algæ Britannicæ,' no room would have been left for my humble labours, nor should I for a moment wish to take the subject out of such able hands. But his work has unfortunately stopped short with the "inarticu-

late" tribes, nor has he at present any intention of resuming it. The task has consequently fallen on my shoulders, and my object will be gained and my ambition fully satisfied, if, in the following pages, I have succeeded in affording any assistance to the researches of my fellow-students. I could have wished, and indeed had intended, that the work should be illustrated with figures, at least of the genera; but my limited stay in Europe did not afford time to prepare them, and it does not now appear desirable to delay the publication till they could be got ready. However they might have added to the beauty of the book, the student will experience little loss by their omission, who takes this Manual for what I wish it to be, a companion to the 'Algæ Danmonienses,' published and sold by Mary Wyatt, Dealer in Shells, Torquay; 'a most important work, now extending to four volumes, with a supplement, composed of *specimens* of 234 species, beautifully dried and correctly named. These volumes furnish the student with a help, such as no figures, however correctly executed, can at all equal,—nature's own pencil illustrating herself."

Of this 'Manual' we do not think it too much to say, that Mr. Harvey alone, among British botanists, was prepared to undertake it. For many years the Algæ, as we have seen, were his peculiar favourites, and he had carefully studied those groups which had been most imperfectly described by other authors.* His volume contains an ample Introduction, in which he considers the structure, habits and uses of these plants; and the descriptive portion is preceded by a Synopsis of the Families and Genera.

The general arrangement is that proposed by the author in the 'Flora Hibernica;' the families being primarily grouped under four series, as follows; the first three being chiefly characterized, as their names indicate, by the colour of their seeds.

Series I. MELANOSPERMÆ, contains the families Fucoideæ, Lichineæ, Laminarieæ, Sporochnoideæ, Dictyotæ, Ectocarpæ, Chordarieæ.

Series II. RHODOSPERMÆ.—Gloiocladeæ, Gastrocarpæ, Spongiocarpæ, Furfurarieæ, Florideæ, Ceramieæ.

Series III. CHLOROSPERMÆ.—Lemanieæ, Batrachospermæ, Chætophoroidæ, Confervæ, Siphonæ, Oscillatorieæ, Ulvaceæ, Nostochinæ, Byssoideæ?

Series IV. DIATOMACEÆ.—Desmidiæ, Fragillarieæ, Styllarieæ, Cymbelleæ.

It will be observed that Mr. Harvey has altogether done away with the old method by which the Algæ were primarily disposed according to the articulate or inarticulate character of the frond. This is surely a great improvement, as many forms occur which are strictly intermediate, by uniting both characters in the same individual.

We observe under Sporochnoideæ that *Striaria Grevilliana* of Pollexfen is reduced to a variety of *Sporochnus rhizodes*. This very singular plant we have ourselves examined, and are not prepared to question the decision at which the author has arrived; but the examination has led us to the conclusion that *Sp. rhizodes* itself might with propriety be placed in the genus *Striaria*, the character being slightly modified. A new species of *Ectocarpus* is described, which was discovered at Ballycastle by Miss Hincks; besides *Ect. fasciculatus* and *pusillus*, for the first time made known in the 'Algæ Danmonienses.'

* Mr. Harvey's algological researches have not been confined to the British Flora. Vide his 'Genera of South African Plants,' and various papers in botanical periodicals.

The genus *Naccaria*, *Endl.* (*Chaetospora*, *Ag.*), placed among the *Ceramieæ* by Agardh, and among the *Florideæ* by Greville, is brought under the *Gloiocladæ* of Harvey. The author observes that the "habit is completely that of *Gloiosiphonia* and *Mesogloia*. The membrane, too, of the periphery, is formed of exceedingly minute, longitudinal fibres, cohering together. May not *Naccaria* therefore be regarded as a *Mesogloia*, wanting the verticillate filaments, except in the ramuli?" Our readers will recognise this plant as the rare *Fucus Wiggii* of Turner.

A plant of considerable interest, and which has been the occasion of a good deal of epistolary controversy, we find raised at length to the rank of a species. The Alga we allude to is *Fucus alatus*, γ . of *Turner*, (*Delesseria alata*, β . *angustissima*, 'Brit. Flor.'). It has been named *Gelidium*? *rostratum* by Mrs. Griffiths, and is assuredly quite distinct from *Delesseria alata*. We believe that all the mistakes which have arisen with respect to this subject, have been caused by very narrow varieties of *Del. alata* having been mixed with, or distributed instead of the true plant. It is remarkable that although found in considerable abundance in Morayshire, by Mr. Brodie, upwards of thirty years ago, it has never been collected by any other botanist.

We have already observed that Mr. Harvey is known to have investigated the *Ceramieæ* with great care; and we find abundant evidence of this in the work before us. It would be impossible to notice the many corrections which his observant and accurate eye has led him to make in this difficult family. We are truly glad to find that he has united *Polysiphonia Agardhiana*, *badia* and *denudata* with *Pol. atrorubescens*. *Pol. Lyngbyei*, *Harv.* in 'Brit. Fl.' turns out to be a new species, and is now named *P. Grevillii*. We have also a new species named *P. Griffithsiana*, and two Irish ones named by their discoverer, Mr. Moore, *P. affinis* and *atro-purpurea*.

The most interesting addition, however, to the British Flora in the whole volume, is the exquisitely beautiful *Thorea ramosissima*, no native specimens of which exist, we believe, in any herbarium. But the late Mr. Templeton has left a note of its having been discovered "in a pool in the Co. Donegal mountains, going from Letterkenny to Dumfanaghy." The plant is too remarkable, and Mr. Templeton's accuracy too well known, to admit of any doubt in regard to it.

We shall not dwell upon the *Chlorospermeæ* and the *Diatomaceæ*, more than to bear our cordial testimony to the care which has been bestowed upon them. These series contain the more obscure families, and doubtless much remains to be done for their farther elucidation. In the genus *Conserva* itself, as it now stands, characters will, we feel assured, be detected, for affording generic subdivision. It is in this part of the work that we feel the want of pictorial illustration; and we trust that when Mr. Harvey shall be called upon for another edition, he will be enabled to add those plates which we know he was most anxious should accompany his excellent Manual. It is indeed a work which must immediately become the text-book of every student of our marine Botany.

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2. *Collectanea for a Flora of Moray: or, a List of the Phanogamous Plants and Ferns hitherto found within the Province.* Elgin: printed by Alex. Russell, Courant Office. 1839.

WE are always disposed to give a hearty welcome to a local Flora, whatever may be the district to which it relates; but the present work possesses peculiar claims to

our kindest regard, for independently of the value of the *Collectanea* in a botanical point of view, they possess additional interest in our eyes from the circumstance that in almost every page we meet with the names of localities, once honoured with the presence of Scotland's Burns, and immortalized by the genius of our own Shakspeare.

Sir J. E. Smith, in his 'Tour on the Continent,' has remarked that "a plant gathered in a celebrated or delightful spot, is, like the hair of a friend, more dear to memory than even a portrait, because it excites the mind without presuming to fill it." The truth of this observation will, we think, be acknowledged by all who have been in the habit of seeking the botanical productions of any country, in their own peculiar habitats; and the remark applies even to the more common and less beautiful plants of a district, as well as to localities with no particular historical or poetical associations attached to them. But with how much deeper interest would such a plant as *Alchemilla alpina* be invested, if gathered at "the Fall of Foyers," perhaps on the very spot where Burns stood when he wrote in pencil the beautiful lines beginning—"Among the heathy hills and ragged woods"! Again, the pleasure of botanizing in the woods of Cawdor and Gordon Castles, and of collecting there *Pyrola media* and *secunda* or *Circæa alpina*, must surely be heightened by the remembrance that Burns himself had wandered in these very woods, since he tells us that he "crossed the country to Fort George, but called by the way at Cawdor, the ancient seat of Macbeth; there I saw the identical bed in which, tradition says, King Duncan was murdered;"—and that his well-known verses—"Streams that glide in orient plains," &c., were written when reluctantly relinquishing the kindness and hospitality of the noble owners of "Bonnie Castle Gordon." Then again, Brodie House and its Laird being so frequently mentioned in the *Collectanea*, we cannot fail to remember that Burns slept at Brodie House; and that we read in his journal—"Mr. Brodie tells me the muir where Shakspeare lays Macbeth's witch-meeting, is still haunted—that the country folks won't pass by night." This *muir* we presume to be "The 'Blasted Heath,' near Brodie;" if so, the midnight revels of Shakspeare's gay old ladies seem to have scared away all the country *plants* as well as country *folks*, for we find but one recorded as growing there—*Orobis tuberosus*, var. *tenuifolius*. Others of the Macbeth localities are also very frequently mentioned, as, for instance, Forbes and its castle-hill; but we must leave poetry and poetical associations, and endeavour to give our readers some idea of the botanical contents of the work before us.

We are quite of opinion that if the rules laid down in Mr. Watson's excellent "Observations on the Construction of a Local Flora" ('Mag. of Zool. and Bot.' i. 424) were generally known and strictly adhered to, the scientific value of local Floras and lists of plants would be greatly enhanced, inasmuch as a greater degree of precision being followed in the compilation of such works, increased confidence in their accuracy would be felt on the part of those who have occasion to consult them. Acting therefore on this opinion, we think we cannot do better than to transfer these rules to our own pages, both with the view of bringing them more immediately under the notice of our readers, and also to exhibit from the *Collectanea* some examples of the practical application of the spirit of the rules. We must however premise that the work is not, strictly speaking, a local Flora, but simply such a carefully executed list of plants as we should be glad to see drawn up for every botanical district in the kingdom; by the circulation of which, as the compiler observes in the Preface, "among those who take an interest in the Botany of the North of Scotland, it is intended to show the result of inquiries hitherto made within the Province of Moray, and

to afford a nucleus around which future discoveries and observations may be collected."

Rule "First," a local Flora, we take it, ought to relate to a definite area, and not pretend to include a wider space than has been really and well investigated."—(Mag. Zool. & Bot. i. 426).

"*Secondly,* we should have a full list of species and the more remarkable varieties; the nomenclature being adapted to that of the standard Floras which relate to Britain generally; generic and specific characters, descriptions and references being altogether omitted."—(Id.)

"*Thirdly,* we should desire to see the degree of scarcity or abundance of each species mentioned, in as close an accordance as possible with some fixed scale."—(Id. 427).

"*Fourthly,* the time of flowering, and the soil and situation affected by each species, should be given from actual observation."—(Id.)

"*Fifthly,* the general distribution of each species, and the localities of the rarer ones, are to be precisely shown."—(Id. 428).

"*Sixthly,* we should recommend the history of the species to be attended to."—(Id.)

We will now illustrate these rules by examples from the 'Collectanea,' beginning with the first.

After describing the boundary lines of "*The Province of Moray, or more strictly, the portion of Scotland kept in view while drawing up this List,*" the compiler proceeds,—"*In extent and locality the district here selected very nearly corresponds to the "Elgin, or Eighth Botanical District of Scotland" as laid down and illustrated in a valuable paper lately read by Mr. Brand before the Edinburgh Botanical Society. In a district so extensive as this, and so little explored (particularly in the southern and western portions) there must be plants yet to be discovered, and many facts to be recorded regarding the distribution of those already met with. The most effectual method by which these objects could be accomplished, would be to institute separate and careful examinations of the several sections—such as parishes and other well-defined districts—into which the Province might be divided. And for this purpose this List, if interleaved, it is hoped will prove highly useful.*"—Preface, iii.

That the conditions of the second, third and fifth rules have been as far as possible complied with, will be evident from the following observations and extracts. The catalogue contains neither generic nor specific descriptions nor references, but gives the scientific names and localities of all the species discovered within the district, up to the time of publication.

"There are 724 species in the Catalogue of Moray Plants, of which 65 are marked (†) as *doubtfully native*, and 70 (‡) as *certainly introduced*.

	Dicotyl.	Monocotyl.	Acotyl.
Genera ...	269	64	12
Species ...	523	169	32

—p. 30.

"Sir W. J. Hooker's 'British Flora,' 4th edition, is followed in the nomenclature and arrangement of the Collectanea. The signs used [to denote the comparative rarity and abundance of the species *within the district*] are those employed by the Edinburgh Botanical Society, [in the 1st edition of their Catalogue]. After these signs the provincial names are added to some of the more common plants. Localities are occasionally given for species which are very far from being rare; but where "&c." is not added, all the known stations are almost invariably inserted. The dates of discovery are stated in many instances; and, when no other authority is quoted, the compiler himself has found or gathered the plant, in the specified localities."—Pref. v.

This perhaps is the proper place to notice one feature of the Collectanea, by which its value to all who feel an interest in the geographical distribution of British plants is greatly increased. "At the foot of the page, and *under a line*, a few species are introduced as being, from their ascertained range in Britain, likely to form early additions to the Flora of Moray. It is on this account, and with the view of noting their localities in the adjoining districts, that they have been placed here. A comparison, however, of Lists I. and II. will show the plants, which are most probably undiscovered denizens, as they contain the species found on either side, but not yet within the Province."—Pref. v. The lists referred to are:—

"I.—*List of Plants, not observed in Moray, but found in Aberdeenshire, or in the eastern part of Banffshire.*" This List contains 89 species.

"II.—*List of Plants not observed in Moray, but found on the west side of Scotland and north of Oban and Iona, or in the counties north of the Caledonian Canal.*" Containing 69 species, 17 of which are common to both lists. Two other lists are also given; one of 66 species, not uncommon within sixteen miles of Edinburgh, but either not observed or very rare in Moray; and the other of 42 species of Moray plants which are not found within sixteen miles of Edinburgh.

With regard to the fourth rule, the omission of the times of flowering is perhaps of little importance, although they would have formed an interesting addition to the Collectanea; but we confess that we should have been glad to see some notice of the geological relations of the species growing in the district. On this subject the compiler observes:—

"In such a treatise as this, it is usual to give a sketch of the geological structure of the district. Such would have been attempted, had there been a sufficient number of facts ascertained to show that there was here really any connexion between the vegetation and the underlying formations. The distance from the shore, and the elevation above the sea level, seem to influence the distribution of the species far more than the mineralogical character of the strata over which they grow. Besides, throughout the Province generally, and especially in the lower part of it, there is such a vast accumulation of alluvial matter interposed between the rock and soil, that the nature of the latter and of its vegetation depends mainly upon the circumstance of the alluvial deposits or subsoil being mossy, gravelly or clayey. In a few spots within the Province, such as Craighalkie near Tomintoul, where the beds of limestone, subordinate to the primary stratified formations, crop out, there are occasionally to be found several species of plants, whose range is evidently circumscribed within the influence of the calcareous soil. *Avena pratensis* seems confined to soils of this nature, changing its habit as the proportion of their ingredients differs. Where there is a superabundance of limy matter the plant often assumes a glaucous and rigid appearance, which has probably originated the *A. alpina*, and causes it still to hold a place as a distinct species."—Pref. iv.

In the above extract there is much to confirm our own views respecting the geological distribution of plants. We are of opinion that it is by the surface soil in which they grow that plants are affected, and not by the rocks or strata over which they occur, unless the latter happen to lie so near the surface as to affect the surface soil, by altering its constituent parts or modifying their proportions. We have no doubt that elevation has considerable influence in the distribution of species; but we cannot help suspecting that the character of the soil of a given district exercises quite as powerful an influence. *Avena pratensis* and *alpina* mentioned above, confirm the truth of our position. These

two plants, whether distinct species or merely different states of the same species, are confined to a calcareous soil, yet each has its own favourite modification of such a soil, and neither of them seems to occur except where the subordinate beds of limestone *crop out*. But our limits prevent our pursuing this interesting enquiry any farther at present.

The subject recommended to be attended to in the sixth rule is an exceedingly important one, and in one of its divisions — that relating to variations caused by change of situation or season, closely connected with the fourth. We however could not expect any information of this nature in a catalogue, whilst a local Flora would scarcely be complete without it.

A "Table of Altitudes within or on the borders of the Province of Moray," and extracts from meteorological journals kept at Elgin and Kingussie, nearly the most distant points of the Province, are very valuable additions to the Collectanea. The altitudes vary from 54 to 4390 feet. A comparison of the annual means of three years' observations of the thermometer and rain-gauge, at the two stations, exhibits a higher mean temperature by 2·8212 at Elgin than at Kingussie; the mean depth of rain at Kingussie exceeds that at Elgin by 6·860 inches.

In a recent number (Phytol. 94) was a notice of Professor Balfour's discovery of *Monotropa Hypopitys* within this province; and in our present number are some further remarks on this interesting addition to the Scottish Phanogamic Flora.

We must now take leave of the 'Collectanea for a Flora of Moray;' and in so doing would again express a hope that the Botany of every district in the kingdom may ere long be equally well illustrated.

ART. XLV.—*Varieties.*

80. *Remarks on British Carices.* In my last note (Phytol. 77) I made no enquiry as to how far the Carices in question are distinct as species; but it having been said (Id. 27) that there are figures of the fruit and its appendages of all the British Carices, if these Carices be British, we should certainly expect to find them there. Of *Carex stictocarpa* and *angustifolia* Hooker tells us he knows nothing, except what is said in Smith's 'English Flora;' and if Smith be correct in his descriptions, and I have no reason to believe otherwise, *Carex stictocarpa* is a very different plant from *C. recurva*. Of the latter I possess 79 varieties, and none of them will at all answer to the description given in 'English Flora' or the figure in 'English Botany.' What Hudson's *Carex recurva* might be I know not, but I consider *C. angustifolia* quite as distinct from *cæspitosa* as either *C. stricta*, *aquatis* or *acuta*, although Hooker, in the 1st edition of his 'British Flora,' placed *acuta* in quite another division of his Carices. If Sir W. J. Hooker had ever seen Schkuhr's beautiful figure of *C. tenella*, I think he would never have said "May it not be a starved state of" *C. remota*. The two stamens of *C. tenella* I consider to be alone sufficient to keep it distinct as a species, to say nothing of its very smooth fruit, which is said to be convex on each side, with an entire beak. A fruit like this is very much at variance with Mr. Leighton's description of *Carex remota*, wherein he says,—the fruit is "plano-convex, ribbed, margins rough, orifice bifid."—(Flor. Shrop. 452). Mr. Leighton further says, speaking of the convex side of the fruit, "with a cord-like mass of ribs which proceed downwards from the bi-

fid orifice to a little above the middle, where it diverges into five ribs, which again converge and unite a little above the base." Now I am at a loss to know how any one could ever think that the starving of a plant would make all these changes of character;—to make the five-ribbed fruit of *Carex remota* become very smooth, and to turn plano-convex into one that is convex on both sides, and lastly its bifid orifice into one that is entire; not to say anything about the number of stamens, which, in the days of Linnæus, would almost have removed it into some other class. Of *Carex Mielichhoferi* I know nothing, except from the figure in 'English Botany,' and what is said by Smith in 'English Flora;' but of *Carex speirostachya* I possess specimens from Wales and others from near Lancaster. The plant is certainly a very different one from *C. fulva*, and a section of the ripe nut of *C. speirostachya* would have been very conspicuous amongst Mr. Leighton's figures of those parts. Among the strange forms that I have gathered this season, I see there is *Carex Ecklonii*, Kunze, 'Supplement zu Schkuhr's Riedgräzer (Cariæes), tab. 5; but how far this is distinct as a species, I will leave to the judgment of others. In the last edition of the 'British Flora,' *Carex speirostachya* is referred as a variety to the *C. fulva* of Goodenough. Goodenough tells us that his *C. fulva* is only a variety of *C. flava*; Leighton tells us that *C. flava* and *Æderi* are the same; and if I add the *C. Ecklonii* of Kunze to the list, we shall see that it will take *Carex speirostachya*, *fulva*, *flava*, *Æderi* and *Ecklonii* to make *Carex flava*: now I should think, for my own part, that these are sufficient to make one species, if not, we may add the *Trasus Hostianus* of Gray, &c.—*Samuel Gibson; Hebden Bridge, October 18, 1841.*

81. *Remarks on the List of Plants*, (Phytol. 77). I embrace this opportunity of making a few remarks on the list of species and varieties said to be new to the British Flora, and described in Leighton's 'Flora of Shropshire.' For my own part I find (with the exception of the Rubi) very little that is new in this list; for surely we cannot consider such plants as *Oxalis Acetosella* β . *purpurea* new to the British Flora, since we find it mentioned in the fifth edition of Withering's Botany, as growing in a lane between North Ofram and Halifax; but that locality has long been destroyed; the plant however was rediscovered about six years since by Mr. Riley of Halifax, about a mile from the place mentioned by Withering. Next we find the plant mentioned by Gray in his work, at page 631, where he says—"plant small, rather villous, petals bluish-purple." Again we find in Smith's 'English Flora,' at page 323, flore purpureo, Dill. in Raii Syn. 281. *Ranunculus fluitans* and *tripartitus*, we received descriptions of twenty-one years ago in Gray's Botany. The *Hypericum tetrapterum* of Leighton is *Hypericum quadrangulum* of Smith, &c., so that we have nothing new in that except the name; *Hypericum maculatum* I have not been able to find in Mr. Leighton's work.—*Id.*

82. *Avena alpina*, (Phytol. 75). In reply to Mr. Simpson's note on *Avena alpina*, I would say that the plant was known to Mr. Baines as having been found in the county, as I gathered the plant, in company with Mr. Baines, in June, 1836, about two miles from Tadcaster. The reason of its not appearing in the Yorkshire Flora is that we do not consider it distinct as a species from *Avena pratensis*, as we have examined numerous specimens, and find none of the characters that are laid down by Hooker to be constant. The plant I believe to be a very common one, as I received specimens last season from Buxton in Derbyshire, and from Wales; I also received specimens from the Yorkshire side of Teesdale. In addition to the above localities, I have a specimen of *Avena alpina* which I gathered near Settle in 1838. In order to

show that Mr. Baines and myself are not alone in considering *Avena alpina* and *pratensis* to be the same species, I copy the following from a note that I received from Mr. Tatham a short time ago. "Dost thou think there is any real difference between *Avena pratensis* and *alpina*? If the panicle being compound or simple is any distinction, we have them both, but I think they are one and the same." Mr. Tatham further says in a note dated September 9, 1841, "I do not think the roughness or smoothness of the sheaths of *Avena alpina* is at all to be depended on, for I have seen both extremes in the same tuft."—*Id.*

83. *Sedum rupestre*, (Phytol. 68). Your correspondent says "no doubt introduced originally." Why he should suppose so I know not. The plant is by no means local in its distribution upon the rocks, and frequently occurs in the most inaccessible parts. —*Leo. H. Grindon; Manchester, October 20, 1841.*

84. *Habenaria chlorantha*, (Id. 70). The species which I have always considered to be the *bifolia*, is very common in woods and shady places about Bristol. Near Butcombe, Somersetshire, as well as at Horfield and Stapleton, it grows in most luxuriant profusion. The *chlorantha* I have seen but once, viz. under Cook's Folly—one of the localities quoted for it. Does it really deserve to rank higher than as a variety of *H. bifolia*?—*Id.*

85. *Anagallis cœrulea*, (Id. 76). I thought botanists were long since agreed as to this plant being only a variety of *A. arvensis*. It grows in cornfields upon the lias at Knowle and Horfield, near Bristol, and *only on the lias*, never appearing elsewhere with blue flowers, or retaining its colour when sown in ordinary garden soil, as I have myself proved.—*Id.*

86. *Equisetum fluviatile*. I gathered a curious variety of this plant in August, 1841, on the bank of the Manchester and Sheffield railway, near Glossip. This specimen was leafy and in good fruit; the catkin was topped by a prolongation of the frond about twelve inches in length. Mr. Francis, in his 'History of British Ferns,' mentions a similar specimen having been gathered near Bangor, in 1836. —*Joseph Sidebotham; Manchester, November 4, 1841.*

87. *Plants observed in the Neighbourhood of Shoreham, Sussex.* During the early part of July, 1838, my brother and myself spent some days at Shoreham, on the coast of Sussex, principally with the view of collecting a few plants from that locality. Amongst the great mass of shingle thrown up by the sea, we found *Vicia lutea* very abundant. *Galeopsis Ladanum*, specimens very small, scarcely exceeding 6 inches in height. *Glaucium luteum*, abundantly displaying its large bright yellow flowers to the saline breeze. A few solitary plants of *Crambe maritima* (which had not flowered that season) between the pier-head and the preventive station; and in the same locality we observed a few patches of *Crithmum maritimum*, just coming into flower. *Sedum anglicum*, plentiful, displaying its beautiful white starry flowers out of reach of the shingle; as was also the case with *Statice Armeria*, *Frankenia lævis*, *Arenaria marina* and *Erum hirsutum*. *Ruppia maritima*, very plentiful in the small pools of salt water in the marshes adjoining, (towards Worthing); and on their margins *Triglochin maritimum*, *Cenanthe pimpinelloides*, *Glaux maritima* and *Juncus acutus*, and where the tide flows over, *Salicornia herbacea* and *Atriplex portulacoides*, very abundant. At the harbour's mouth, against the piers, we found a few plants of *Cakile maritima* and *Statice spathulata*. *Centaurea Calcitrapa* abundant. *Linum angustifolium* very abundant at the foot of the cliffs towards Brighton, near Kingston. *Rottbolla incurvata*, on the sands just above high-water mark. *Chenopodium maritimum* and *Silene*

maritima everywhere. *Coronopus didyma*, in various places by the road sides. Although we very carefully examined the whole line of beach between Brighton and Worthing, we could not find a single specimen of *Trifolium stellatum*: the only habitat, as stated in the 'Botanist's Guide' &c. is "between the sea and Shoreham Harbour in the greatest profusion," and supposed to have been originally introduced in ballast. I should very much wish to know if any specimens have been taken from this station of late years. I have specimens in my herbarium from this locality, collected upwards of thirty years ago; the great alterations that have taken place at the entrance of the harbour, by the erection of piers &c., have in all probability destroyed the habitat. On our return from Shoreham we observed *Sambucus Ebulus* very plentifully but not in flower, by the sides of the road, against the toll-gate at Bramber and in the fosse at the foot of the old castle. *Iris foetidissima*, very plentiful and in full flower.—*J. D. Salmon*; *Godalming*, November 8, 1841.

88. *Cyperus longus* in the Isle of Wight. It will, I have no doubt, interest the readers of 'The Phytologist' to know that I have detected "the tall and graceful *Cyperus*," as my friend the Rev. G. E. Smith very justly calls it, in three distant localities within the island. In two of the above stations it is abundant; in the third, a wet meadow below Carisbrook Castle, on the S.E. side, very rare, a specimen or two only having been gathered. I first detected *Cyperus longus*, which I had always calculated on eventually finding with us, quite accidentally, in a low meadow at Apes Down,* between Carisbrooke and Swainston, the seat of Sir Richard Simeon, Bart., on whose land it grows, and within a mile of the house on the Carisbrooke road, at the bottom of a steep pitch, the meadow being on the right coming from Carisbrooke, and nearly opposite a small farm. This was in 1839, and the next year I found the plant in still greater quantity, covering at least half an acre, in a marshy meadow through which runs a little stream, between the new lighthouse at St. Catherine's Point, and empties itself into the sea at Old Castle Point by Puckaster, the station being much nearer the latter, and below the farm of Little Buddle, by which there is a path that conducts almost to the spot, within ten minutes walk of the Sand-rock Hotel. The *Cyperus* begins to flower about the middle of August, but is in its greatest perfection a month later, after which it is usually mown down by the occupier of the land, as green fodder for his cattle, to which this plant, from its sweetness, is very acceptable. — *Wm. Arnold Bromfield*; *East Mount, Ryde, Isle of Wight*, November 8, 1841.

89. Note on *Tamarix gallica*, (Phytol. 91). Pulteney long since gave Freshwater Gate as a habitat [for this plant], but I could never find it there, except as a cultivated tree, by the hotel, a condition which, of course, excludes it entirely from notice amongst our indigenous productions. As far as my own observation goes, the genus *Tamarix* should be expunged, with *Staphylea* and some others, from the British Flora, since I cannot ascertain that it is even naturalized, strictly speaking, in any of its recorded stations. At Hastings it certainly does not grow spontaneously, though stated to do so by Goodenough, and it has but too evidently been planted at St. Michael's Mount and other places in Cornwall, as well as at Languard Fort, and in every other spot where I have had an opportunity of seeing it.—*Id.*

* This place must not be confounded with Apse Heath, or Apse Castle, which are in a different part of the island, though the orthography was probably once the same in all.—*W. A. B.*

90. *Flora of the Isle of Wight*. Anxiety to render as complete as possible a Flora of this island, on which I have been for some years past, and am still engaged, and a desire to verify personally all the species and their respective stations, lead me earnestly to request from such gentlemen as have botanized in the island, a communication of their discoveries, which I shall at all times feel most happy and grateful to receive and acknowledge, and most particularly so when accompanied by specimens, however small, of the plants found by them.—*Id.*

91. *Discovery of Monotropa Hypopitys at Cawdor, Nairnshire*. Dr. Balfour lately paid me a hurried visit, on his return from a botanical excursion to Skye and the outer Hebrides, when he was so fortunate as to make a very interesting addition to the Flora of this district, by the discovery of *Monotropa Hypopitys* in the wood of Cawdor, about a mile from here: I may, I believe, call it an addition to the Flora of Scotland, for Mr. Watson does not mention it in his very accurate 'Botanist's Guide,' as occurring in Scotland. Dr. Balfour could get only a single specimen; some days afterwards I succeeded in getting a few more, growing under birch and oak, where the ground was thickly covered with a moss (a species of *Hypnum* I believe), so densely indeed that the grass was almost choked with it, a blade only being to be seen here and there. The specimens of *Monotropa* were generally about a yard apart, sometimes two being together. I could trace the fibres of the *Monotropa* a very little way beyond those of the moss, and did not observe any connection between them and the roots of the oaks and birch, the only trees growing near them; and am of opinion that if they draw any part of their nourishment from the roots of the neighbouring trees, they certainly do derive considerable support from the vegetable soil in which they grow.—*Wm. Alex. Stables; Cawdor Castle, Nairn, November 10, 1841.*

92. *Errata in Mr. Flower's List of some of the rarer Bristol Plants*, (Phytol. 68). Page 68, line 13, for *Braston* read *Bourton*: lines 37 & 38, for *Peupole* read *Penpole*. Page 69, line 21, after *Lotus tenuis*, add "Meadows about Sea Mills." Having studied the characters of this plant for the last three seasons, I cannot consider it anything more than a variety of *Lotus corniculatus*. Page 70, line 22, after *Allium* add *ca-rinatum*.—*Thos. B. Flower; 8, Surrey Street, Strand, November 13, 1841.*

93. *Lastræa Thelypteris*. I have lately observed this interesting fern, in great plenty, on Birtle and Glastonbury Moors, Somerset. I believe it is by no means frequent in this county.—*Id.*

94. *Phyteuma orbiculare*. This plant occurs in the greatest abundance on Roundway Down, near Devizes, Wilts, in company with *Asperula cynanchica*, *Thesium linophyllum*, *Juniperus communis* and *Spiræa Filipendula*.—*Id.*

95. *Cuscuta Epilinum*. On flax in plenty, between Compton Martin and Ubley, also at West Harptree, on the road to Cheddar, Somerset.—*Id.*

96. *Arabis stricta*, (Phytol. 68). I have much pleasure in thinking the habitat of *Arabis stricta* on St. Vincent's rocks, may still be preserved. Some years since I sowed a quantity of seed in spots whence I had previously gathered plants, and have again done so this year. I wish it to be particularly understood that my cultivation has been confined to known spots, and to St. Vincent's Rocks alone. For doing this I have been gratified by receiving thanks from the most distinguished botanist of the day.—*Fredk. Rupert; Brislington, Nov. 17, 1841.*

97. *Corrections and Additions in Mr. Mill's List of Plants in the Isle of Wight*, (Phytol. 91). Line 34, for *Triticum Nardus* read *T. junceum*. *Tamarix gallica*, (line 37) has most probably been introduced into the locality near Yarmouth. *Poa bulbosa*

(line 42) must be erased from the list: the mistake arose from an imperfect specimen of a grass from Alum Bay having been compared by a friend with continental specimens of *Poa bulbosa*, in its viviparous state. The Alum Bay plant was afterwards found to be an *Agrostis*. To the plants growing in salt marshes at Yarmouth, add *Triglochin maritimum* and *Potamogeton pectinatum*. To those of the New Forest add *Triglochin palustre*.—*J. S. Mill; Kensington, December 20, 1841.*

98. *Erratum.* (Phytol. 111), line 19, for Entomol. No. 90, read Entomol. page 159.

99. *Death of Professor Don.* It is our painful duty to announce to our readers the loss which Botany has sustained in the death of our esteemed and lamented friend,—Mr. David Don. His merits as a botanist are abundantly testified by his numerous papers and essays published in periodicals or transactions during the last twenty years. his worth as a man requires a more particular notice. It has never been our lot to meet with a botanist equally able and willing to afford information to the student: his bibliographical knowledge was most extensive; so much so indeed, that on the name of an author being mentioned to him, he would instantly inform the enquirer of all the works written by that author, of the value of their authority, their dates, principal contents, and the library in which they might be found; and the slightest enquiry would immediately elicit a detailed statement of every serviceable fact relative to the subject suggesting it. Nothing could exceed the prompt and cheerful manner with which he entered into all debateable questions relating to botanical nomenclature, or his rigid impartiality in asserting the right of priority: nothing could exceed the kindness and zeal with which he assisted every student, however complicated or however trite the subject laid before him. Indeed we may safely say, that in him the botanical enquirer has suffered a loss never to be repaired.—

“We ne’er shall look upon his like again.”

Mr. Don was born at Forfar on the 21st of December, 1779; and his descriptions of new and rare native plants found by his father in Scotland, proves Mr. Don’s early proficiency in the study of Botany. He came to London in 1819, and in 1822 was elected librarian to the Linnean Society, an appointment which he held during the remainder of his life. In 1836 he was appointed Professor of Botany at King’s College, and commenced his first course of lectures in the May of the same year. He died at the house of the Linnean Society, at 1 o’clock in the morning of the 8th of December, 1841, after a painful and lingering illness of upwards of twelve months, and was buried on the 15th at the Kensale Green Cemetery. In addition to the immediate relatives of the deceased, the funeral was attended by Dr. Brown, Sir W. J. Hooker, Messrs. Bowman, Forster, Bentham, Bennett, Anderson and Smith.

We insert below a chronological list of Mr. Don’s works, so far as we have been able to ascertain them.

Descriptions of new or rare native plants found in Scotland by the late Mr. George Don, of Forfar. Printed in the Wernerian Memoirs, iii. 1821.

Descriptions of new plants from Nepal, in the herbarium of A. B. Lambert, Esq. Wern. Mem. iii. 1821.

Monograph of the genus *Saxifraga*. Linnean Transactions, xiii. 1822.

Illustrations of the natural family of plants called *Melastomaceæ*. W. Mem. iv. 1823.

Monograph of the genus *Pyrola*. Id. v. part 1. 1824.

Descriptions of nine new species of *Carex* from Nepal. Lin. Tr. xiv. pt. 2. „

Description of *Cowania*, a new genus of plants; and of a new species of *Sieversia*. Id. xiv. pt. 3. 1825.

- Prodrômus Floræ Nepalensis. 1825.
 On the classification and division of Gnaphalium and Xeranthemum, *Linn.* Wern. 1826.
 Mem. v. pt. 2. 1826.
 Description of the genus *Malesherbia* of the 'Flora Peruviana.' Edinburgh New Philosophical Journal. 1827.
 Description of *Lophospermum*, a new genus of Scrophularinæ. *Lin. Trans.* xv. pt. 2. 1827.
 Descriptions of *Columellia*, *Tovaria* and *Francoa*. *Ed. New Phil. Journ.* 1829.
 Observations on *Philadelphæ* and *Granatæ*. *Id.* "
 On the affinities of the *Empetræ*. *Id.* "
 On the characters of *Darwinia*, *Brunsfelsia*, &c. *Id.* "
 Attempt at a new classification of the *Cichoracæ*. *Id.* "
 On the affinities of *Vellozia*, *Glauz*, &c. *Id.* 1830.
 Monograph of the family *Cunoniacæ*. *Id.* "
 On the origin & nature of the ligulate rays in *Zinnia* &c. *Lin. Tr.* xvi. pt. 2. "
 Descriptions of the new genera and species of *Compositæ*, belonging to the Floras of Peru, Mexico, and Chile. *Id.* 1830.
 On the characters &c. of certain genera of the Flora Peruviana. *Ed. New Phil. Journ.* 1831-2.
 On the Rhubarb of commerce, the purple-coned Fir of Nepal, and the Mustard-tree. *Id.*
 Descriptions of some new species of *Malesherbia*, *Kageneckia*, *Quillaja* &c. *Id.* 1832.
 Note on the Cow-tree of the Caraccas. *Id.*
 On the characters and affinities of the genus *Codon*. *Id.* 1833.
 On the connexion between the calyx & ovary in certain *Melastomacæ*. *Id.* "
 On the plant which yields the Gum *Ammoniacum*. *Linn. Trans.* xvi. pt. 3. "
 On the *Tropæolum pentaphyllum*, *Lam.* *Id.* xvii. pt. 1. 1834.
 Additional Observations on ditto. *Id.*
 On the æstivation of certain plants, formerly referred to *Cinchona*. *Id.* "
 New arrangement of the *Ericacæ*. *Ed. New Phil. Journ.* "
 On the anomalous structure of the leaf of *Rosa berberifolia*. *Id.*
 Remarks on some British Ferns. *Linn. Trans.* xvii. pt. 3. 1836.
 Descriptions of five new species of *Pinus* from California. *Id.* "
 Descriptions of Indian *Gentianæ*. *Id.* xvii. pt. 4. 1837.
 Descriptions of two new genera of *Coniferæ*. *Id.* xviii. pt. 2. 1839.
 Description of a new genus of *Bignoniacæ*, (*Catophractes*). *Id.* xviii. pt. 3. 1840.
 Descriptions of the Indian species of *Iris*. *Id.*
 Account of the Indian species of *Juncus* and *Luzula*. *Id.*
 Monograph of the genus *Disporum*. *Id.* xviii. pt. 4. 1841.
 Monograph of *Streptopus*, with the description of a new genus (*Prosartes*) separated from it. *Id.*
 List of the plants collected by Mr. Fellowes in Asia minor, with descriptions of the new species. 1841.
 The new series of Sweet's British Flower-Garden, commenced about 1830.
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ART. XLVI.—*Proceedings of Societies.*

LINNEAN SOCIETY.

November 16.—Edward Forster, Esq., V.P., in the chair. Specimens of a hybrid *Linaria*, found growing near *L. repens* and *L. vulgaris*, were exhibited. Read, a paper on Vegetable Monstrosities, by The Rev. W. Hincks; illustrated by numerous specimens, both dried and preserved in spirits, of monstrosities caused by adhesion, transformation, and increase and decrease of parts. Read also, the commencement of a paper by Dr. Gardner, on the Influence of the Dew-Point on the Temperature of Plants.

December 6.—Robert Brown, Esq., V.P., in the chair. Specimens of *Scrophularia Ehrharti*, collected in Bellsine Park, were exhibited. Read, a paper by Mr. D. Cooper, illustrated by drawings, on the Structure of the Fruit of a Species of *Phytolapha*, called "Vegetable Ivory." The albumen of the seed is so hard as to take a finer polish than common ivory. Under the microscope it exhibits a tubular structure. Read also, the conclusion of Dr. Gardner's paper, on the Influence of the Dew-Point on the Temperature of Vegetables. From a series of experiments the author concludes,—1. That vegetables possess no specific heat. 2. That the variations observed in plants are chiefly due to the state of the dew-point, the elevation of which causes an increase of heat by checking evaporation, whilst its depression, by encouraging evaporation, produces a decrease of heat. 3. That the sensible heat of plants is directly as the temperature of the air and the chemical action proceeding in their cells, and inversely as the radiation, evaporation and conducting power of the air and soil; the chemical action increasing with an increase of atmospheric temperature, the amount of heat resulting therefrom increasing also.

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, November 11, 1841. Professor Graham in the chair.

Donations to the Herbarium were presented from Dr. Von Martius, and to the Library from Mrs. W. Campbell,—and Professor Balfour mentioned that since last meeting he had been in communication with the Natural-History Society of Athens, to which he had transmitted a set of the Society's publications.

The following papers and communication were read:—

1. Account of a Botanical Excursion to Skye and the Outer Hebrides, during the month of August, 1841, by Professor Balfour and Mr. Charles C. Babington; and remarks on the plants observed by them in the Islands of North Uist, Harris, and Lewis. In this communication the authors drew attention chiefly to those facts which tend to illustrate the variations produced by climate, soil and elevation. In Skye their observations were confined to the south-western part of the island. They landed at Armadale, and passing by Knock, Ord, and Strathaird to Loch Colruig, they crossed the Cullin Hills to Sligachan, and from thence went by Braacadale to Dunvegan. Among the plants observed in this route may be mentioned *Rumex aquaticus*, *Atriplex rosea*, *Arabis petraea*, *Myriophyllum alterniflorum*, *Potamogeton oblongus*, *Orobancha rubra*, *Mimulus luteus*, &c. From Dunvegan they crossed the Minch to Loch Maddy in North Uist, and after examining the botany of that island they proceeded to Harris and Lewis. On the lofty mountains of the forest of Harris, some of which they reckoned to be at least 3000 feet high, they were surprised to find very few alpine plants, for which they could only account by supposing the climate of the island to be so modified by the vicinity of the Great Atlantic Ocean, as to be too mild for the production of the usual alpine vegetation. The following are mentioned among the more interesting plants found in Harris and Lewis:—*Lamium intermedium*, *Euplia maritima*, *Pinguicula lusitanica*, *Thalictrum alpinum*, *Salix herbacea*, *Aira alpina*, *Saussurea alpina*, *Luzula spicata*, *Arabis petraea*, *Silene acaulis*, *Elymus rufus*, *Juncus balticus*, *Scirpus lacustris*, &c. They also gathered *Hymenophyllum Wilsoni* among rocks upon the summit of Cheeshaam, apparently the highest mountain of the range. The number of species observed in North Uist, Harris and Lewis, during this excursion, was 311, of which 91 belonged to the orders Filices, Lycopodiaceae and Equisetaceae. The number of true ferns was 14; being in the proportion of 1 to about every 22 of the flowering plants; that is, they form about 1-22nd part of the whole number of species at present known to be indigenous in these islands. Mr. T. Edmonston, jun., records 949 species of native plants for the Shetland Islands, (Ann. Nat. Hist. viii. 267), of which 14 are ferns, Lycopodiaceae and Equisetaceae, the number of true ferns being 7, thus showing a proportion of 1 fern to about 33 flowering plants. Owing to the necessarily imperfect character of the Long Island list, it is impossible to draw any satisfactory conclusions from the above proportions, between the flowering plants and ferns, yet it may be noticed that there is a great preponderance of ferns in both these northern and insular countries, although the actual numbers recorded are remarkably small. The ferns in Shetland are less numerous than those in Iceland or Faroe, while those of the Long Island exceed the Faroe species by four, and are exactly equal to the number found in Iceland,—the Faroe and Iceland lists being the smallest recorded in Mr. Watson's valuable paper on the Distribution of Ferns, recently published in the Transactions of this Society, (vol. 1, p. 60). The more mountainous character of the Long Island will probably account for the much larger proportion (1 to 22), which its ferns bear to the flowering plants, than that which appears to exist in Shetland—for although considerable allowances be made for the imperfect state of the Long Island list, on account of the short time employed in its preparation, yet it does not seem probable that the number of its flowering plants will be so far increased as to raise their relative proportion as high as that shown to exist in Shetland, since this would require an addition of 161 species, even if the number of

birds remained stationary. The communication concludes as follows:—"We must be allowed to impress upon the Society, that this tour is not of the less interest for not having produced any plants new to the British Flora, since we consider the determination of the Flora of any district, peculiar either in its structure or situation, to be of importance, as elucidating the effect of soils or climate upon the distribution of plants. We would also take this opportunity of expressing our sense of the obligations under which we lie to the gentlemen of Skye and the Long Island, who in a truly kind and liberal manner exercised their hospitality towards our party, and greatly contributed to the pleasure, indeed we may say to the success, of the excursion."

2. On the Anatomy and Physiology of the seed of *Phaseolus vulgaris*, or French Bean; by Dr. Spencer Thomson, Burton-on-Trent. In this paper, which was accompanied by illustrative drawings, the author, after giving an elaborate dissection of the seed, stated a variety of circumstances relative to its mode or course of germination, and traced the analogies between that process and the growth of the fetus in the animal kingdom. He also noticed M. De Candolle's views on the subject, and pointed out the results which seemed to arise from them.

3. On the discovery of three species of Fungi, new to the British Flora, viz., *Tuber ferrugineum*, *Æcidium Theisti*, (Leef.), and *Uredo Symphyti*, (De C.); by The Rev. J. E. Leefe. With regard to the first of these fungi, Mr. Leefe says—"The specimens are in general of a rich red bronze colour. Their smell is peculiarly strong and penetrating, so that on receiving a letter enclosing specimens, Mr. Berkeley can, before opening it, determine positively what it contains."

4. Notice of the discovery of *Cruciatum triviale*, *β. holosteoides*, (Fries), near Kinfauns Castle, Perthshire; and of *Rubus arcticus*, near the head of Glen Tilt, Perthshire; by Mr. J. Robertson, Kinfauns Garden. Considerable interest was manifested respecting the occurrence of the latter species in the British Flora, and some discussion took place with regard to its identity; but the specimen exhibited was so imperfect as to leave doubts whether the discovery ought yet to be fully relied on, especially as our botanists have more than once been disappointed in this respect.—*Edinburgh Evening Post*, November 17, 1841.

BOTANICAL SOCIETY OF LONDON.

November 20.—Fifth Anniversary Meeting. John Edward Gray, Esq., F.R.S., &c., President, in the chair. The Report of the Council was read, from which it appeared that 20 members had been elected since the last Anniversary, and that the Society now consisted of 142 members. The donations to the Library amounted to 220 volumes, many of them valuable works. The Council had determined that the Report on the Scientific Proceedings of the Society should appear at the close of the winter season, and it was fully expected that a nearly complete collection of British plants would be ready for use in the course of the present winter, and also that a Foreign herbarium of several thousand specimens would soon be in equally good order. The new regulations as to the distribution of specimens, whereby the members are enabled to receive their parcels shortly after their lists of desiderata are sent in, had been much approved of, and the appointment of a paid Curator had been equally advantageous. The Report was unanimously adopted. A Ballot then took place for the Council for the ensuing year, when the Chairman was re-elected President, and he nominated John George Children, Esq., F.R.S., and Hewett Cottrell Watson, Esq., F.L.S., Vice-Presidents. Mr. G. E. Dames, F.L.S., Mr. J. Reynolds, and Mr. T. Sanson, were respectively re-elected Secretary, Treasurer, and Librarian. Additional local Secretaries were also appointed.

December 17.—John Reynolds, Esq., Treasurer, in the chair. Donations of British plants were announced from Messrs. Hewett C. Watson, J. Seeley, G. Hubbard, S. P. Woodward, G. Rich, The Rev. W. T. Bree, and Miss M. Beever; British Fungi from Mr. D. Stock; and British mosses from Miss A. Worley. Mr. Hewett C. Watson, V.P., presented specimens of the following undescribed British plants:—

1. *Linaria Bauhini*. Discovered near Feuryn, in Cornwall, in 1830 or 1831, by Mr. Watson; again found at Shirley, near Southampton, in 1840; also by The Rev. W. Hincks, in the county of Cork, last summer. It is the *Antirrhinum Bauhini* of Gandin's 'Flora Helvetica,'—the *Antirrhinum genistifolium* of Suter's 'Flora Helvetica,'—but not the plant so named by Linnaeus. Probably also it is identical with *Linaria Italica* of Treviranus, and of Koch's 'Synopsis Florae Germanicae et Helveticae.'

2. *Lolium multiflorum*. Discovered in a pea-field at Claygate, Surrey, in August, 1840, by Mr. Watson; also in other parts of England, during the past summer, by different botanists. It is *Lolium multiflorum* of Lamarck, Koch, and other continental botanists, who distinguish it from *Lolium perenne* by its annual root, numerous flowers in the spikelets, and the long awns. The two last are varying characters, and the plant is reduced to a variety of *Lolium perenne* by Bertoloni, in the 'Flora Italica.'

3. *Bromus commutatus*. This grass is frequent in England and Scotland, but has constantly been confused with other species of *Bromus*. Smith first mistook it for *Bromus arvensis*, and afterwards, in the 'English Flora,' described it jointly with another species under the name of *Bromus racemosus*. The specimens distributed by the Botanical Societies of London and Edinburgh, under the name of *Bromus arvensis*, all probably belong to *Bromus commutatus*, and it is left a question whether the former species is indigenous to Britain. Independently of more technical distinctions, there is one obvious enough at first sight, namely, that the flowers of *Bromus arvensis* (Linn.) are only half the size of those of *Bromus commutatus*, (Schrader), as was shown in an accompanying specimen of *Bromus arvensis* from Germany.—G. E. D.

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No. IX.

FEBRUARY, MDCCCXLII.

PRICE 6D.

ART. XLVII. — *Three Days on the Cotteswolds.*

By JAS. BUCKMAN, Esq.

HAVING engaged to accompany my friend Mr. Edwin Lees, in a three days' Natural-History expedition to the Cotteswolds, towards the end of September in the present year [1841] we started on our journey, armed with vasculums, portfolios, books, hammers and bags, and under the command of General Briggs, of Cheltenham, a gentleman to whom the naturalists of this neighbourhood are much indebted for his kindness in aiding their researches, by accommodating them on such occasions as the present with the use of his carriage, so that they may arrive at the scene of their labours on the rugged hill-top or heathy moor, fresh and ready for work.

Having proceeded as far from Cheltenham as the first coach-stage on the London road, we turned to the left from Andoversford Inn, and in a short time alighted from the carriage in the very heart of the Cotteswolds, the road leading directly over the top of the hills to the ancient town of Stow-on-the-Wold. Of course we soon diverged from the road into the fields, where we duly commented on the great abundance of *Campanula glomerata*, *Cnicus acaulis* and *Carlina vulgaris*, which in this neighbourhood are always stout and fair, and of goodly proportions, the latter especially, as it occurs from one to two feet in height, whilst on Leckhampton, a hill nearer Cheltenham, it seldom attains more than four inches, and looks so withered and dead as to lead an inexperienced botanist into the belief that it is some ill-grown specimen of a common thistle in a state of decay; and this peculiar appearance is not entirely lost in the more luxuriant specimens, as the external scales of the involucre always present the appearance of the "sear and yellow leaf" of approaching death. That beautiful thistle, *Cnicus eriophorus*, is frequently met with in a most luxuriant condition on the grassy sides of these hilly roads.

Immediately on emerging from this road to the right across the fields, by a place called Slad Barn, we found some fine plants of *Linaria spuria*, the corollas of several specimens of which had three or four spurs; this is a curious circumstance, but one that I had before observed in specimens growing near Cheltenham in a rich cultivated soil. Some of these corollas too, instead of being lipped, were salver-shaped, with a straight upright tube. I very much regret that I did not then think of 'The Phytologist,' as all good botanists should do, or I should certainly have made a drawing of this singular kind of metamorphosis, for insertion in its valuable pages; this omission I promise to rectify on some future occasion, as the extent of change cannot be shown in the dried specimens. This *Linaria* is extremely common on our highest hills as well as in the vales, and is accompanied in all its habitats by the elegant little *L. Elatine*, and I suspect the one is derived from the other, as I have met with numberless intermediate stages; and if *Linaria spuria* and *Elatine* are to be considered distinct species, surely the specimen I have adverted to must claim to be considered as an ad-

ditional one. *Specularia hybrida*, with *Euphorbia exigua* and *Peplus*, were found at the same spot. *Onobrychis sativa* formed the aftercrop of the field, from which barley was just ready to be carried; this substitution of *Onobrychis* for clover as an aftercrop is a somewhat novel feature in our farming.

Having crossed the road some distance farther on, we commenced tracing up a lovely hill-stream called the Windrush. At the picturesque village of Harnton it is a small brook, whose "waters flow on with a murmuring sound," and are as bright and as clear as crystal; and here we met with four species of *Potamogeton*,—*gramineus*, *densus*, *crispus* and *lucens*; the large beds of the three last, with their rich polished leaves, as they were agitated by the ceaseless flow of the rippling stream, under the influence of a bright sun, reflected the richest and most varied tints imaginable. The *Potamogetons* are comparatively rare with us, on account of our great paucity of water. In this brook we also found another plant of rare occurrence in this district,—*Poa aquatica*. Just before we left the road to explore the brook, our attention was arrested by the sight of two large trees of *Pyrus Aria*, which were then in fine fruit. This tree gives quite a characteristic feature to all the Cotteswold woods, the bright silvery leaves contrasting beautifully with the dark green of summer and the rich yellow and brown tints of autumn; but owing to the practice of annually clearing away a portion of underwood, with which this tree is generally doomed, it is rare to find a specimen in flower; and it is not until one meets with a venerable tree in some retired nook, where the woodman's axe has been withheld for a number of years, that one can obtain a presentable specimen, as these trees do not flower until, "with lichens silvery grey," the bark has attained the same hue as the leaves.

Leaving this brook to pursue its tortuous course through some beautiful green fields, we proceeded by a nearer route to the spot where it passes under the turnpike road; and having recrossed this *via intermedia* of our course, we again traced up the brook to the rich botanical habitat known by the name of the Seven Springs.* Here the water gushes out from several places at the base of an oolitic hill, tossing and leaping in wild tumultuous joy, as if well pleased to escape from its rocky cave into the light of day, and a glorious day it was that shone upon the liquid crystal at the time of our visit. These waters, at a short distance from the base of the hill, run over a largish surface of tolerably level ground, forming a kind of swamp or bog, bounded on one side by the Windrush, whose waters these springs considerably augment. The botanist who is not afraid of wet feet, or the chance of the occasional disappearance of a leg or so in the depths of a quagmire, and few ardent spirits mind such trifling mischances, will find himself amply rewarded by diligently examining every inch of this slippery place; for though it was so late in the year, we discovered the following plants during our short visit.—

<i>Blysmus compressus</i>	<i>Menyanthes trifoliata</i>	<i>Pinguicula vulgaris</i>
<i>Carex vesicaria</i>	<i>Parnassia palustris</i>	<i>Scutellaria galericulata</i>
<i>Hydrocotyle vulgaris</i>	<i>Pedicularis palustris</i>	<i>Triglochin palustre</i>
<i>Marchantia polymorpha</i>		

* These Seven Springs must not be confounded with those on the Cirencester road, which are said to be the source of the Thames. Our country people are very fond of calling by this name all places where the water gushes forth from a number of small channels.

A few yards farther on, in the spring or early summer, was to be found that rare plant *Thlaspi perfoliatum*; and this is now perhaps the only locality for it in Britain, as I am given to understand that the rapacity of unprincipled collectors has nearly or quite destroyed it in its old habitat at Burford quarries. Two years since, on another of the small hills beyond the one at the base of which we have been tarrying so long, I gathered a plentiful supply of *Anemone Pulsatilla*; and at the same time I accidentally stumbled on the *Thlaspi*. In the vale below, on the brook side, is our only habitat for *Saxifraga granulata*.

Leaving this most interesting spot we pursued our journey to the large and opulent village of Bourton-on-the-Water, plucking on our road a few specimens of *Anthyllis Vulneraria* and the pretty little *Geranium columbinum*; which latter plant, associated with *Acinos vulgaris*, occurs plentifully on all our hilly lands which have been subjected to cultivation.

Next morning we had to await the ending of a thunder-storm before we could resume our wanderings; and then, having to pass over a considerable tract of country which we had already examined, we hired a vehicle to convey us to the woods between Bourton and Winchcombe, having previously fixed on the latter place as the termination of our second day's journey. On arriving at Guiting woods we left the chaise and proceeded a little distance along the lane, the grassy sides of which were thickly strewn with *Gentiana Amarella*; this species is very abundant all over the hills, but I have never found *Gentiana campestris* in this neighbourhood.

Having fairly entered into these woods we made it a point to trace up the Wind-rush to its source, expecting to meet with a picturesque wood scene, and perhaps find some good plant, which might be accurately localized from growing in such a situation. In the former expectation we were disappointed, as the spring rises out of a swampy piece of ground, and presents nothing remarkable; but three grasses amply satisfied us on the latter score, these were *Elymus europæus*, *Calamagrostis epigejos* and *Poa nemoralis*, all three of rare occurrence here. *Alchemilla vulgaris* was very fine; this plant is not common here, while *A. arvensis* is found everywhere. *Rhamnus catharticus* and *Viburnum Lantana* were observed in this wood; and the grassy glades in the wood and fields around were thickly studded with *Colchicum autumnale*. This plant is very plentiful all over the Cotteswolds, and even in the vale we have whole fields of it: the roots and seeds of the *Colchicum* are collected in great quantities from this neighbourhood, for the London physic-market, as the plant still holds a high reputation for the cure of gout and rheumatism.

The above are some of the most important plants seen by us this day, the grass having been so wet as to prevent our examining the country with the requisite industry and circumspection; moreover, we were rather anxious to reach the old-fashioned town of Winchcombe, whither our friend the General had preceded us. Soon after emerging from the wood we fell upon a large stone-quarry, which of course claimed a share of our attention. And this reminds me that I have not yet said anything on the geological construction of this neighbourhood, a subject which I consider highly important to the proper illustration of the Botany of a district; perhaps therefore the following remarks may not be deemed out of place.

The vale of Gloucester is composed of the blue clays and marls of the lower lias formation, presenting us with all the fossil remains peculiar to this formation, such as the *Ichthyosauri*, many *Ammonites* and bivalve shells, and occasional remains of plants. This bed of lias clay is occasionally covered to the depth of from 20 to 30

feet with fine sand, especially in many parts upon which the town of Cheltenham is built, the greater portion of which deposit is derived from the neighbouring hills by which the vale is bounded on its eastern extremity; on tracing up the escarpments of these hills we meet with the following beds, namely, the middle lias or lias marlstone, the upper lias, corresponding with the alum shale of Yorkshire, immediately on which rests the inferior oolite, which forms the greater portion of the Cotteswold hills. And it should be remarked that although the members of the lias formation make up the greater portion of the acclivities by which the higher hills are approached, still these alopes are so thickly covered with the debris from the oolite which forms the upper stratum, as to render this, so far as the Botany is concerned, a district of oolitic limestone, whilst the vale, as I have before remarked, offers us the stiff clays of the lias. And here I would refer my readers to an article by Mr. Spruce (*Phytol.* 101), and it will at once be seen that notwithstanding this neighbourhood and Yorkshire are so much alike in lithological character, scarcely two plants of the same species were found in the three days' ramble of the two parties, plainly showing that in these instances we must seek for some other causes of variation besides the soil, of which altitude and climate may require some consideration. It may be worthy of remark that our highest elevation is little more than 1000 feet.

After duly examining the quarry which has led us into the above geological dissertation, we proceeded on the even tenour of our way along the lane, the banks of which were thickly strewn with that everywhere found and universal favourite, the harebell, intermixed with *Gentiana Amarella* and the common *Hieracium Pilosella*. Having arrived at the Tracey Arms at Winchcombe, and packed up a hamper of specimens, we refreshed ourselves, and then finished the second day's ramble with an examination of the fine ruins of Sudely Castle, whence we gathered, as a memorial of our visit, that constant attendant on old ruins, *Cheiranthus Cheiri*.

Notwithstanding certain gloomy appearances the previous evening, the early dawn of our third day was as favorable as one could desire. The sun, at rising, was shrouded in clouds of mist—a sure indication of a fine day; these being gradually dispelled, he soon shone forth in all his splendour, the fierceness of his rays being tempered by a delightfully refreshing breeze. Early on a morning of such promise did Mr. Lees and myself once more wend our way to the Cotteswolds, this time with the intention of examining their western escarpment. Proceeding from the town of Winchcomb towards Postlip, near the paper-mills, we fell in with a tree of *Rosa sarmentacea*; the greater stoutness of the stems, its more compact mode of growth, with the larger bright scarlet fruits of this rose, distinguish it at first sight from *Rosa canina*. In the same hedge-row were some fine trees of *Salix Russelliana*; and further on, nearer the mill, great quantities of *Lathyrus sylvestris* presented themselves. At the once stately mansion called Postlip Hall, we spent a little time in sketching the beautiful Norman arches of a ruined chapel. Immediately below the chapel, on the banks of a hill rivulet, we met with *Triglochin palustre*, *Blysmus compressus*, *Spergula nodosa*, and quantities of *Valeriana dioica*; and following this little stream up a ravine, we were soon presented with some fine specimens of *Polypodium calcareum*, and on the side of the hill to the left were some splendid plants of *Atropa Belladonna* in fine fruit. We then passed over Cleeve Clouds in the hope of finding *Astragalus hypoglottis*, as I had seen a specimen from thence, but in this we were disappointed; however, in examining a field covered with *Calluna vulgaris*, we were amply rewarded by securing many specimens of *Gnaphalium sylvaticum*. We next examined the cliffs over-

hanging Queen Wood, which look down upon Lord Ellenborough's seat at Southam; the crevices of the rocks afforded *Asplenium Trichomanes* and *Ruta-muraria*, and on some of the masses of stones were *Myosotis collina*, *Solidago Virgaurea*, and young plants of *Verbascum nigrum*. Upon penetrating into the wood below, we were soon in active employment securing the most beautiful specimens of *Convallaria Polygonatum* in fruit, in searching for which we saw whole patches of *C. majalis*. *Rosa villosa*, *Viburnum Lantana* and *Opulus*, *Rhamnus catharticus*, *Conyza squarrosa* and *Campanula glomerata* also claimed a share of our attention; but the greatest prize in this rich spot is *Rubus saxatilis*, and of course upon seeing it we were very anxious to secure specimens in fruit, as it simulates the young state of *R. cæsius* so much, as to render it a matter of great difficulty to distinguish them. After looking for some time in the thickest part of the wood without finding the wished for *red drupes*, we directed our attention to the more open parts, where we found some specimens in very fine fruit, with the drupeolæ few, large and red. And here we observed a somewhat curious fact, which is that such plants as had runners were without fruit, while those in fruit were stronger, partially woody, but destitute of runners. After collecting *quantum suff.* of these rare plants, we were bending our steps homewards towards Cheltenham, when my friend Lees became very anxious to visit a beech-grove then in sight; and though we had been thirteen hours on the wild hills with only a biscuit between us, I was fain to yield to his wishes in the hope of finding *Monotropa Hypopitys*, which we did find, and I am quite sure the readers of 'The Phytologist' will share in our pleasure and gratification in so doing, in reading the elegant paper by Mr. Lees, detailing his investigation into its parasitic nature, (*Phytol.* 97). After securing an abundance of the *Monotropa* in fruit, and also some fine specimens of *Epipactis grandiflora* in the same state, we set our faces homeward in real earnest, and soon arrived well satisfied with our sport, and inwardly resolving never to let a season pass without having a Natural-History expedition on the lovely Cotswolds.

JAS. BUCKMAN.

Cheltenham, December 14, 1841.

ART. XLVIII. — *A List of Plants met with in the neighbourhood of Swansea, Glamorganshire.* By J. W. G. GUTCH, Esq.

(Continued from p. 121).

Echium vulgare. Near the Infirmary and on Town Hill.

Pulmonaria officinalis. Found by Dr. Turton in woods between Neath and Pyle, (Dillwyn).

Lithospermum officinale. At Park, near the Mill.

———— *purpureo-cæruleum.* Abundant in several places on the coast of Gower, particularly in Nicholston Wood, and about the top of the cliffs in Caswell Bay. It has also been found on a rocky bank near Newton-juxta-Pyle, by the Rev. J. M. Traherne, and in other places in that neighbourhood by Mr. Bicheno.

Borago officinalis. Near Port Tennant and Cadoxton.

Lycopsis arvensis. Near Port Tennant.

Anchusa sempervirens. At Baglan, near Neath, and about the ruins of Neath Abbey, (Dillwyn).

Myosotis caespitosa. Near Singleton.

—— *arvensis*. Common.

Cynoglossum officinale. Side of road to the Mumbles, common; Cromlyn Burrows.

Convolvulus arvensis. Sand hills, common.

—— *sepium*. Common in hedges. The var. *incarnata* also occurs on the road to Dan-y-graig, and in hedges between Wych-tree bridge and Neath, and about Penrice.

—— *Soldanella*. Sand hills; Mumbles Road and Cromlyn Burrows.

Plantago major, media, lanceolata and *Coronopus*.

—— *maritima*. Neath canal. On the rocks and sandy shores in Langlan, Caswell and other Bays. My late friend the Rev. Hugh Davies, in his 'Welsh Botany,' p. 16, says that the Welsh call it "Bara can y defaid," and "Sampier y ddafed," and that these names, and the almost miraculous properties which this plant possesses for fattening cattle, have been erroneously attributed to *Salicornia herbacea* by Pennant, and to *Crithmum maritimum* by Withering, (Dillwyn).

Armeria maritima. Mumbles light-house and coast.

Statice spathulata. Gower.

Ligustrum vulgare. In hedges.

Andromeda polifolia. On Cromlyn Bog, chiefly towards its northern extremity, until the drainage took place. A quadrifid octandrous flower sometimes occurs on the same plant with others that are decandrous, (Dillwyn).

Calluna vulgaris, and var. *alba*. Kilvey Hill.

Erica Tetralix, and var. *alba*. Town Hill and Pennard.

—— *cinerea*, and var. *alba*. Kilvey Hill.

—— *vagans*. Mr. Thomas Milne, a botanist not likely to be deceived, told me that he had seen specimens which he knew had been gathered on a heath somewhere near Pontardulais, but I have never been able to find it. I was also assured by Dr. Turton, that a wild specimen of *Erica mediterranea* had been brought to him, which was gathered in the same neighbourhood, (Dillwyn).

Vinca major. Plentiful about Park Mill and some other places, but I have never found it in any place to which it might not probably have strayed from some neighbouring garden, (Dillwyn).

Erythræa Centaurium. Between Swansea and Port Tennant, and common round Swansea.

—— *linariifolia*, (*littoralis*, Hook.) On the down above the Mumbles light-house.

—— *ramosissima*, (*pulchella*, Hook.) In great abundance in a field near the Infirmary, and at Salt-house Point. Abundant on Cromlyn Burrows, where I have also found a plant which very well answered to Sowerby's figure of *Chironia littoralis*, and I much doubt whether either of them is more than a starved plant, or variety of *E. Centaurium*, (Dillwyn).

Chlora perfoliata. Road near Neath; frequent in Gower; between Drymma and Gwernllwynwith, and some other places.

Menyanthes trifoliata. In great abundance on Cromlyn Bog, Fairwood Moor, &c.

Datura Stramonium. Occasionally found on rubbish-heaps, (Dillwyn).

Hyoscyamus niger. Frequent in Gower, Cromlyn Bog, and by Neath Canal.

Verbascum Thapsus. Singleton and Mumbles road.

—— *Blattaria*. Singleton Marsh and several other places round Swansea; at

Neath Abbey, and by the road side between Taybach and Maryam. Though rather out of this district, it has also been found by Mr. Edward Hawkins on the road side three miles from Pyle, towards Cartridge, and in the lane leading to Pwllwyrach. Another species, allied to *V. Blattaria*, which I believe has not yet been admitted into the British Flora, for many years grew freely with *Ænothera biennis*, on the sand hills in front of Cambrian Place, but by the enclosure of the Burrows it has probably been destroyed, (Dillwyn).

Atropa Belladonna. In a hedge above the Mumbles; also said to grow near Oystermouth Castle. Mr. Dillwyn observes that he has never seen it nearer to Swansea than Llandaff; Mr. Flower, of Bath, however, found two specimens in 1839, near the Mumbles.

Glaux maritima. On the sand hills opposite Cambrian Terrace.

Lysimachia vulgaris. Banks of Neath Canal.

———— *nemorum*. Hedges near Port Tennant.

Anagallis arvensis. Common. The var. *β. cærulea*, and another beautiful variety, nearly white, with a pink eye, have been found near Penllergare by Mr. D. Llewellyn, (Dillwyn).

———— *tenella*. Near Singleton.

Samolus Valerandi. Neath Canal.

Utricularia minor. Llandwr Marsh.

Veronica Anagallis. Near Park and Pennard; lane from Mr. Vivian's to Sketty green.

———— *Chamædrys*. Near Penllergare; M. Moggridge.

———— *serpyllifolia, arvensis* and *polita*.

Rhinanthus Crista-galli. Town Hill and Cwmbola.

Pedicularis sylvaticus. Near Cromlyn Bog; Penllergare.

———— *palustris*. Penllergare, Cromlyn Bog and Fairwood Moor; common.

———— var. *alba*. Cotremia, near Penllergare, Fairwood Moor, &c.

Bartsia viscosa. About Drymma, where it was first found by Mr. Edward Hawkins.

It also grows plentifully in marshy fields in Cromlyn Dingle, on the left of the old road between Swansea and Neath, and other similar places, (Dillwyn).

———— *Odontites*. Kilvey and Singleton, common.

Euphrasia officinalis. Common.

Linaria repens. Ballast-bank, Britton Ferry; and plentiful by the road-side in many places about Llandilo, Llangaddock, and Llandovery.

———— *vulgaris*. Fabian's Bay.

———— *purpurea*. By Mr. J. Thomas's, Hill House.

Digitalis purpurea. Hedges, especially near Singleton, in great luxuriance.

Scrophularia nodosa and *aquatica*. Singleton Marsh.

Orobancha major. Not uncommon in the neighbourhood; there is also another species, which answers nearly to the description of *O. cærulea*, but is of a dull reddish brown colour, (Dillwyn).

———— *elætor*. Under the castle-walls at Penrice, and other places in the neighbourhood.

Melampyrum pratense. Llandwr Marsh, Penllergare.

Verbena officinalis. Common.

Salvia pratensis. Gathered by Dr. Turton in limestone meadows about Port Eynon, (Dillwyn).

Ajuga reptans. Common.

- Lycopus europæus*. Cromlyn Bog and banks of Neath Canal.
- Mentha rotundifolia*. On the castle cliff at Penrice, and it formerly grew about Singleton, (Dillwyn).
- *piperita*. Found by Dr. Turton in the town ditch, near Rutland Place, (Dillw.)
- *arvensis* and *aquatica*. Cromlyn Bog and Kilvey Hill.
- Thymus Serpyllum*. Common.
- Origanum vulgare*.
- Calamintha officinalis*. Singleton Marsh.
- *Acinos* and *Clinopodium*. Common.
- Glechoma hederacea*. Common.
- Galeopsis Ladanum* and *Tetrahit*. Common.
- Lamium purpureum*. Near the Ferry.
- *album*. Common.
- *Galeobdolon*. Penllergare.
- Leonurus Cardiaca*. At Kidwelly, found by Mr. E. Foster, (Dillwyn).
- Stachys sylvatica* and *palustris*. Fabian's Bay.
- *palustris* β . *ambigua*. Kilvey Hill.
- *arvensis*. Mumbles road.
- Ballota fastida* ? and var. *alba*. Near the Ferry.
- Scutellaria minor*. In moist meadows about Penllergare and Drymma, generally more common than *S. galericulata*, (Dillwyn).
- Prunella vulgaris*. Common.
- Rumex Acetosa* and *Acetosella*.
- *scutatus*. Mr. Dillwyn has observed this plant for many years together, growing luxuriantly on a wall; and Mr. Bicheno has found it in similar situations about Cornelly, with as good a claim as *Ornithogalum nutans*,* *Chærophyllum sativum* and many others, to be placed in the British Flora.
- Polygonum amphibium* and *lapathifolium*. Common.
- *minus*. Near the Ferry.
- *maritimum*. Near Salt-house Point; near eastern pier.
- *Bistorta*. In moist meadows, not uncommon.
- *Pernicaria*, *mite* and *Convolvulus*.
- Salsola Kali*. On the sea-shore, near the Ferry, with a variety.
- Salicornia herbacea*. Salt marsh near Neath canal.
- *radicans* β . *fruticosa*. Said by Dr. Turton to grow about Salt-house point, (Dillwyn).
- Chenopodium Bonus-Henricus*. On the Worm's Head, where it is used as spinach, for which it is an excellent substitute; also near Neath.
- *rubrum*. Near Singleton marsh.
- *album* β . *viride*. Near Singleton.
- *glaucum*. About St. Helen's.
- Schoberia maritima*. Salt-house Point, near the eastern pier, and the Neath Canal.
- *fruticosa*. Port Tennant.

* On the sandy sea-shore opposite the race-course on Cromlyn Burrows, and more than a mile from any sort of house or garden, Mr. L. L. Dillwyn has found a thriving young plant of *Yucca gloriosa*, and it has all the appearance of having risen from a seed which the tide had cast there.

- Beta maritima*. In great abundance in all the caves on the sea-coast of Gower.
- Halimus portulacoides*. Muddy shores on Cromlyn bog; Park and Pennard.
- Atriplex patula*. Between the Ferry and Port Tennant.
- *angustifolia*. Near Singleton, and near Kilvey Hill.
- Urtica urens* and *dioica*.
- Reseda Luteola*, *lutea* and *fruticulosa*. Mumbles road, in a field near the Infirmary, and Singleton.
- Euphorbia Helioscopia*. Corn-fields.
- *Cyparissias*. I believe this also has been found in the neighbourhood, but the only certain habitat that I know of in Glamorganshire, is the road-side near Duffryn. It has also been found between Cardiff and Pont-y-Pridd, where it was gathered by Mr. Woods, (Dillwyn).
- *Paralias*. Common, especially about Pennard.
- *portlandica*. About Caswell Bay. I have found it in abundance near Pennard, on the coast.
- *exigua*. Sketty.
- Mercurialis perennis* and *annua*. Pennard Castle.
- Betula alba* var. *heterophylla*. By Morris Castle.
- *alba* var. *mollis*. About Gwernlenwith.
- Alnus glutinosa*. Near Singleton and Cwmbola colliery.
- Salix Russelliana*, *vitellina*, *triandra*, *aurita*, *aquatica*, *cinerea*, *fusca*, *β. repens*, *δ. fætida*, *ζ. argentea*.
- Populus alba*, *tremula*, *nigra*.
- Quercus Robur*. Common.
- *sessiliflora*. Kilvey Hill.
- *Cerris*. There were formerly several, there are now two or three, large trees growing in the woods by the lime-kiln near Aberdylais; and I have reason for believing that some acorns of this species were planted about this neighbourhood not very far from a century ago, (Dillwyn).
- Corylus Avellana*. Cromlyn Bog.
- Juniperus communis*. Gower.
- Taxus baccata*.
- Myrica Gale*. Cromlyn Bog.
- Callitriche autumnalis*. Near Neath and Gwernllwynwith.
- *vernalis*. Common.

J. W. G. GUTCH.

(To be continued).

ART. XLIX.— *Varieties*.

100. *Note on Lycopodium inundatum*.* I have this day been looking on Esher Common, with the last number of 'The Phytologist' in hand, for *Lycopodium inundatum*, and have found it in tolerable abundance; but as on close inspection I find its habit as to branching to be more than occasional, I venture to send you a specimen, and to state what appears to me to be the normal mode of growth. In several plots of ground which have been pared not very long ago, perhaps three or four years, I endeavoured to trace the old branch of the *Lycopodium*, and almost invariably, where I

* In a letter to E. Newman.

was able to do so, found it remotely connected with another old branch at a wide angle. I think I found as many recent stems forked as simple; and the latter, to my mind, appeared to form the exception, and not the rule. I beg to send this as a suggestion, which, I cannot help thinking, you will find, on investigation, to be founded in reality; for, according to my view, the stems are, as you say, prostrate, creeping, firmly adhering to the soil by means of their roots, but instead of being rarely branched, *with a tendency at length to become dichotomous*, the two branches then gradually growing at a wider angle from each other, perhaps until the angle is one of 70°. The old stems are all so much decayed that I was not able to secure a single one with its remote branch; but the specimen I send will show the incipient ramifications, the weaker of the two at a very obtuse angle. *Centunculus minimus* and *Bidens cernua* are both found on the common.—*W. H. Dawney*; 30, *Upper Brook St.*, Sept. 22, 1841.

101. *Curious form of the common Reed.* Should the botanist be tempted to ramble along the shore towards Puckaster, he can hardly fail to remark the very singular form of the common reed (*Phragmites vulgaris*), which abounds on the slipped banks of wet and almost semifluid clay, skirting the southern shores of this island. The only notice I can find of this curious prostrate variety of a species naturally quite erect, is in Ray's Synopsis, 3rd edition, by Dillenius, where, in the *Indiculus Plantarum Dubiarum* at the end of the volume, I remember to have read very long ago the then very puzzling announcement of a "*Gramen arundinaceum 30 pedes longum. On the South of the I. of Wight by the sea-side towards the Point;*" precisely the very station on which I first met with it, and calling to recollection the above quotation, which at the time of reading it only created a feeling of wonderment, the mystery was at once explained. Springing from the steep sides of these extraordinary land-slips, the roots interlacing in all directions just beneath the surface, may the common reed of our ponds and marshes be seen with its culms depending like long and slender ropes, or trailing in a straight or serpentine direction on the shingly beach or the smooth and level sand, and that without rooting at the joints, to the length of from 20 to 40 or even 50 feet. I have never observed the extremities of the culms to blossom under these circumstances, as indeed they could scarcely be expected to do with so exhausting a length of growth; the leaves too are very short, as if imperfectly developed, and occasionally a few radicles are emitted from one or other of the joints, but in general the plant lies quite prostrate and entirely unconnected with the soil from the root upwards, so that it may be wound about any object like a cord, without the least difficulty. The variety is very common on the slipped shore beyond Black-gang, and has been noticed since near Bembridge, by my zealous friend Dr. Thos. Bell Salter.—*Wm. Arnold Bromfield*; *Eastmount, Ryde, Isle of Wight*, Nov. 8, 1841.

102. *Staphylea pinnata.* The retention of *Staphylea pinnata* in our Floras seems continued in deference to the authority of Ray, in whose time it is said to have grown about Pontefract sparingly and not certainly wild. It is likewise mentioned by Merrett as found in "woods in the farther part" of the same county, and as a Yorkshire plant by Smith, on the authority of Saml. Hailstone Esq. of Bradford, but who now sees reason to believe himself mistaken in thinking it a native. The old writers, Gerard and Parkinson, mention it, the former giving very suspicious localities for it in Lincolnshire, the latter, hedges about Ashford in Kent. In none of these stations has it been seen by any recent botanists. I am told it is plentiful in Arniston woods, near Edinburgh, but accompanied by the lilac, laburnum and other shrubs of foreign growth, plainly pointing out its extraneous origin. It is much to be regretted that our gene-

ral and local Floras should be burdened with stations actually *more than suspicious*, yet passed currently for truly wild localities, without allusion to or comment on their disputable character. The practice is one subversive of all progress in Vegetable Geography, a most interesting and delightful department of botanical science.—*Id.*

103. *Additions and corrections in the Scottish localities of Lycopodium inundatum*, (Phytol. 49). From the careful manner in which Mr. Newman is drawing up his interesting papers on the British Lycopodia in 'The Phytologist,' I presume he will excuse my pointing out a slight inaccuracy in that on *Lyc. inundatum*. He mentions two localities in this country, but they are really but one and the same station, and that a very circumscribed one, hardly two yards square, first observed by myself. Dr. Balfour, I know, never saw this *Lycopodium* growing in Nairnshire, and Dr. Greville I believe never was there; they have furnished him I suppose with copies of the tallies which accompanied the specimens they received from the station, so that it is not unlikely the mistake arose with myself; I shall give below the station more correctly described. This correction is so unimportant that I should not have troubled you about it, but that I can give you at the same time three other Scotch stations for this plant. Beginning at the most South-easterly station and going N.W., they would stand in the following order, which is also, I rather think, the order of their discovery.

Scotland.—Morayshire; at Hatton, on the confines of the parishes of Alves and Kinloss, *Mr. Geo. Wilson*. Nairnshire; near Lochlee, to the east of Nairn, *Mr. Jas. B. Brichan*: on moist healthy ground (now planted) between Budgate and Inchgettle, near Cawdor, *Mr. W. A. Stables*. Ross-shire; by the side of the path leading from Craigdarroch Cottage towards the Falls of Rogie, beyond Strathpeffer, *Mr. Geo. Wilson*. — *Wm. Alex. Stables*; *Cawdor Castle, Nairn, Nov. 18, 1841.*

104. *Lycopodium annotinum, Selago and Selaginoides*. The stations for *Lycopodium annotinum* may also be carried more to the northward, for I have a specimen of it from Ross-shire, given me by Mr. Geo. C. Smith; and I myself have gathered it (Aug. 3, 1833) on Freewater, a mountain in Sutherlandshire. In giving the stations for this species, you give Ben na *Mac dhui*, i.e. the Mountain of the Black Son, instead of Ben na *Muic dhui*—the Mountain of the Black Boar. I cannot however vouch for my Gaelic orthography, though it is nearer what it should be than yours. I shall give the stations whence I have specimens of *Lyc. Selago* and *Selaginoides*, though I fear too late for the papers on these species, at any rate for one. *Lycopodium Selago*.—Pennyghent Hill, Yorkshire; and Widdybank, Teesdale, Durham; *Mr. R. B. Bowman*. And I have gathered it myself in Glen Callader, and on Ben na *Muic dhui*, in Aberdeenshire. *Lycopodium Selaginoides*.—Coilmore, west of Ireland; *Mr. R. I. Shuttleworth*. High Force of Tees, Durham; *Mr. R. B. Bowman*. Hills round Ulleswater. And I have picked it in Glen Dole, Forfarshire.—*Id.*

105. *Notes on the Genus Tilia*. Notwithstanding the repeated discussion of the claims of our three species or forms of *Tilia* to be considered indigenous to Britain, and the adduction of many facts *pro* and *con*, no definite conclusion appears as yet to have been arrived at. In this undecided state of the question it becomes the duty of botanists to accumulate all the facts and observations within their power, bearing upon the subject at issue. With this view I forward the following statement of the appearance and occurrence of the genus in the Forest of Wyre, as communicated to me by Mr. George Jorden, of Bewdley. I should however premise that the present Forest of Wyre, which comprises an area of about fifteen or sixteen square miles, one

half in Shropshire and the other in Worcestershire and Staffordshire, is merely the remnant of a much more extensive forest, which, from ancient records, is well ascertained to have existed there in the earlier periods of our history, and consequently must be considered as an undoubted primitive or natural forest. Mr. Jorden writes as follows.

"The *Tilias* are thinly scattered over the Shropshire part, but in the Worcestershire portion they are abundantly spread over an extensive district, there being many entire copses of them. A loamy or sandy soil suits them best. By some eminent botanists the *Tilias* are not considered indigenous; I consider them truly so, if I may be allowed to differ from them in opinion, when founded on the results of my having traversed this forest in various parts, for upwards of three miles in a straight direction. I find *T. Europæa* and *grandifolia* very generally distributed in a great portion of Worcestershire, and but sparingly in Shropshire, in our native woods and hedges on the rocky declivities of the banks of the Severn, where they grow self-planted in shapeless masses. They prefer the light soils accompanying the new red sandstone formation, and have spread themselves over the stiff soils adjoining, but more sparingly. Even the oak, king and tyrant of the forest, has permitted the location of *Tilia Europæa* in the centre of the forest of Wyre, but *T. grandifolia* is not so plentiful. In our very old hedges, so interesting in those portions of the country which have been longest under cultivation, are faithfully recorded all our truly indigenous trees and shrubs, which were moved promiscuously from the contiguous wilds some centuries ago, and which will remain for ages yet to come, since by diminishing their stature their existence is apparently prolonged. In a very short space of such hedges I have noted the greater number of our native trees and shrubs, the undoubted tenants of our ancient forests, and amongst the rest *Tilia Europæa* and *grandifolia*. In plantations I perceive some *Tilias* which seem to differ from those which grow wild in our woods and hedges."

Mr. Jorden kindly accompanied the above interesting and instructive remarks with specimens, which on examination I found readily separable into three very distinct forms, identical with our three species:—*Europæa*, *grandifolia* and *parvifolia*. These, independently of any characters from the form, number, or clothing of the fruit, I perceived were easily distinguishable by the form and texture of their leaves. In *T. Europæa* and *grandifolia* the leaves were of a thin membranaceous substance, of a bright transparent green, paler on the under surface, and with very unequal bases. In *Europæa* the serratures of the margins were finer and sharper, their apices pretty generally directed towards the point of the leaf; whilst in *grandifolia* the serratures were larger and coarser, their apices patulous or spreading in all directions. The nervures of *T. grandifolia* on the under surface were ciliated or hairy; those of *Europæa* being glabrous, except at the axils. In *T. parvifolia*, on the contrary, the leaves were of a thick coriaceous texture, of an opaque green on the upper surface, but peculiarly and most markedly glaucous beneath, and with very equal and deeply cordate bases. The serratures of the margins were large, coarse and patulous, having a strong tendency to become lobed in the upper portion.—*W. A. Leighton; Shrewsbury, December 22, 1841.*

106. Notes on *Monotropa Hypopitys*. In reference to the question of the parasitical habit of *Monotropa* (Phytol. 43), I may state that I have had an opportunity of studying it this year in rather favourable circumstances. It grows on the Lancashire coast, near Southport, among *Salix argentea*, on the roots of which it was supposed to be parasitical. With a view to ascertain this, I was supplied in August last with a plant

carefully cut out in the sod, by the original discoverer (Linnaeus Aughton of Southport), through the kindness of my friend Dr. J. B. Wood, of Manchester. Notwithstanding the apparent facilities for laying bare the root of the plant, the soil consisting of mere sand, it was not an easy task to separate the extraneous matter from the subject of enquiry, and at the same time to preserve the connexion, if any, that might exist between the root of the *Monotropa* and that of the *Salix* included in the sod; but having bestowed considerable care on the process, I feel warranted in stating that the plant is *not a parasite*. The root seems to consist of a number of branched tubers, whose extremities are not attenuated, but obtuse. My idea of the tuberous nature of the root, is founded on the fact that young buds are found immersed in the substance of the cylindrical ramifications, destined, I presume, to become future branches, which grow out at right angles from that on which they are fixed. If spongioles exist at all, they must be sought for at the extremities of the ramifications. It may be as well to state that the individual examined possessed a rudimentary stem, which had all the appearance of being a successive growth for development at a future season. The position of this embryo stem was somewhat peculiar, pointing downwards. I believe the plant to be entirely destitute of stomata: it also differs materially from *Lathræa* in its economy, having nothing whatever analogous to the subterranean leaves of that plant.

Since writing the above I have read the paper by Mr. Lees, — ‘On the parasitic growth of *Monotropa Hypopitys*,’ (*Phytol.* 97); and whilst I admit that my researches, however carefully conducted, afford only *negative* proof, I think it must be granted that neither the drawings nor the observations of Mr. Lees are conclusive, and that the affirmative evidence of the parasitism of *Monotropa*, amounts to no more than *probability*. Moreover, I cannot avoid the inference that the investigation has not been conducted with that care and scientific skill which the subject demands; for nothing like microscopic dissection appears in Mr. Lees’ drawings, and the mere application of a lens will not solve the mystery. In my deliberate judgment the “fleshy clustered radicles” mentioned in the foot-note at p. 100, form the proper and the only root of the plant; and some of Mr. Lees’ remarks confirm this opinion. In the Southport plant examined by me, there was indeed a very close investment of the root, nearly like that described by Mr. Lees; but my inference was that it consisted of the woolly matted extremities of the grasses which grew with the *Monotropa*: be that as it may, I succeeded in detaching it from the roots of the latter, with as much ease as such a coat might be expected to permit, and when detached there was no appearance of laceration or “solution of continuity” between it and the root which it had encased. Some idea of this coating may be gathered from the cloth-like arillus of the seed of the tamarind. I will now briefly state what I myself observed at variance with the position laid down by Mr. Lees.

1st. That the mass composing the root of the Southport *Monotropa* had a white covering of a matted and somewhat woolly substance, supposed to proceed from the radicles of the grasses which grew with it. Under the microscope, and after careful anatomical examination, I could not find the least trace of organic connexion between this coating and the root of the *Monotropa*.

2ndly. That there was not even *contact*, much less parasitical connexion, between this white coating and the roots of the *Salix* contained in the sod.

I may here mention what were my perceptions as to the scent given out by *Monotropa*. Mr. Lees confirms the account given by Smith, and it would appear that a primrose-like scent exhales from the plant, even when in seed. Fresh flowering plants

from Southport were quite inodorous to me until they had lain some time in paper to dry; they then gave out a scent very similar to that of a raw potato, and I took care to have the fact confirmed by other people's noses. I may also mention that *Monotropa* has not been accurately described either by Smith or Hooker. What the former alludes to as smaller and interior petals, in reality constitute the *calyx*, and are inserted on the *outside* of the true petals, which have cucullate bases projecting farther back than the point of insertion: hence the mistake into which Smith has fallen; the petals therefore are but 4 or 5, and the leaves of the perianth corresponding in number. The hollow channelled stigma and style of *Monotropa* may be considered very favourable for exhibiting the pollen-tubes; with a small hooked needle they may be drawn out from a longitudinally divided style in considerable masses, each pollen-tube having the same diameter as the grain of pollen at its summit. — *W. Wilson; Warrington, December 23, 1841.*

107. *Adiantum Capillus-Veneris in the Isle of Man.* During the summer of 1841, and but a short time previous to the date of Mr. Clark's notice (*Phytol.* 89), I had occasion to visit the Isle of Man; and foremost among the objects of attraction in the island was *Adiantum Capillus-Veneris* at Glen "Meay," to see which, and the ruins at Peel, a day was set apart. We were soon rolled across the island from Douglas, and having wandered musingly for some time among the venerable ruins of Peel Castle, I proceeded to the extensive quarry of old red sandstone in the neighbourhood, and thence directed my steps to "the Glen," which, after some trouble, I found. The plantation was entered through a gap in the hedge-row, and following a narrow path through the trees, I gained the brook-side about twenty yards below the fall; with some difficulty I made my way, on the right hand side of the brook, to the basin, and having leaped the stream, I found good footing on the extended gravel bed of the brook, which was bounded by a precipitous bank of rock, but certainly in no way deserving the appellation of a cave. It was in the crevices of this rock that I first observed the *Adiantum*, and here I found only about four almost leafless plants; fearful lest this might be the only spot on which it grew, and deprecating, with Mr. Newman, everything like botanical ravages, I made some further examination before any specimens were gathered, and for the satisfaction of Mr. Clark and others I can state that there is no need of doubt respecting its continuance, for in the course of my search, which was continued as far as I could manage to get along the left bank, I found young plants, intermingled with a few more mature ones, in tolerable quantities, though it required some examination where the fronds were gone, and they were fast decaying, to discover the roots of the fern. Furthermore I may add that the finest root I saw, perhaps the parent of the whole, was high above the waterfall, and perfectly inaccessible; this it was that left in my mind no fear of its eradication, I therefore gathered the few roots I first saw, leaving little *there* behind me. Such however was the state of these roots that they only supplied about seven green fronds; they are doing very well in cultivation. The difficulty of discovering the frondless roots was perhaps, also, in some measure, the cause of Mr. Clark's disappointment; but surely, to carry away the only root to be found, is not the best method of rendering authentic a dubious locality.—*Thos. G. Rylands; Bewsey House, Warrington, December 24, 1841.*

108. *Objection to the Alphabetical Arrangement of Local Lists of Plants.* Mr. Editor, will you allow me to make public (in the same periodical) an individual protest against a recommendation made by the reviewer of the second edition of the Catalogue published by the Botanical Society of Edinburgh, (*Phytol.* 109). The reviewer

very judiciously recommends the adoption of that Catalogue as a general standard of nomenclature; and with that recommendation I would most cordially concur, notwithstanding an opinion that some of the names will be again changed in a third edition. But the reviewer extends his recommendation farther than this, by suggesting the expediency of botanists adopting the alphabetical arrangement in publishing local lists of plants; and it is against this latter part of the recommendation that I would offer my single protest; knowing well, from long and frequent experience, the extreme inconvenience of consulting such alphabetical lists. It is absolutely necessary for distributing societies to have a fixed series of names, to facilitate the tedious processes of sorting their specimens, and of supplying the desiderata-lists of applicants; and the alphabetical order certainly offers many advantages for this special purpose. It is much otherwise when the general objects of science are concerned, and individual students or writers require to consult numerous books and lists of plants, published at different periods, or in different countries. Uniformity of names is out of the question under these circumstances; and any arrangement by which similar plants are brought together becomes better than an alphabetical one, in which similar names only can be brought together, and where a difference of name of course destroys the regularity of the series. I am now engaged in preparing for the press a somewhat voluminous work on the distribution and localities of the plants of Britain, and have found it so very inconvenient to make references to alphabetical catalogues, or even to consult them, as to have felt strongly disposed to draw a line of distinction between the alphabetical and arranged lists; rejecting the former as unsuitable for the purposes of science. I find that with one, or at most two exceptions, this line of distinction would throw out only the inaccurate lists of inexperienced and incompetent botanists; but as it would be wounding the feelings of others without any necessity for doing so, did I give examples of this, it is better to refrain. Those who have had half as frequent occasions as I have had, to consult lists of plants published in this country, will easily supply examples from their own recollections. The internal evidence afforded by the Catalogue reviewed, clearly indicates the individual author of the altered nomenclature; and we do not find him publishing local lists alphabetically, when the general purposes of botanical science are in view, though he has printed some highly interesting and valuable lists of that class.—*Hewett C. Watson; Thames Ditton, January 5, 1842.*

109. *Additions to the Flora of Moray.* Mr. Stables (Phytol. 132) records an interesting addition to the published Catalogue of Moray plants. Perhaps it may be worth while to add two other species observed by myself within the same district last summer, as the non-mention of any plant in a local Flora is a sort of negative evidence against its existence in the tract. The two species are *Allosorus crispus* and *Carex saxatilis*; the former growing in plenty on a stone wall near the toll-bar at Dalwhinnie; the latter in a mountain corrie, about five miles eastward of the same place, and at an elevation rather exceeding 2,500 feet.—*Id.*

110. *Erratum.* Phytol. 133, line 26, for 1779, read 1799.

ART. L.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF LONDON.

January 7. John Edward Gray, Esq. F.R.S., President, in the Chair. The following donations were announced. British Plants from Dr. Streeten, Dr. Young, The Rev. Gerard E. Smith, Miss S. Foster, Mr. Gutch, Mr. Edwin Lees and Miss E. Harvey. Mr. W. A. Leighton presented specimens of *Tragopogon minor* (Fries), found in Shropshire. Mr. James Ward presented specimens of *Lecanora rubra* and *Ribes spi-*

cusum (Robson), found in Yorkshire. A specimen of *Poa Borreri* was exhibited, collected by The Rev. G. E. Smith, at Lynton; which, although presenting the characters of that species, actually exhibited in two panicles a strong tendency to the reflexion of the adult branches, as in *Poa distans*. Mr. Adam Gerard presented some interesting plants from Sierra Leone, collected by Mrs. Blyth. The Society had also received a large collection of foreign mosses from Dr. Muhlenbeck; and specimens of *Seseli Libanotis* collected in Herts, by The Rev. W. H. Coleman. Books had also been presented by Mr. Gutch, Mr. Luxford, Mr. G. Rich, and the Shropshire Natural-History Society. A letter was read from Dr. Nees Von Esenbeck, thanking the Society for electing him a foreign member.

A paper was read from Edwin Lees, Esq. F.L.S., "On the Flora of the Malvern Hills, and the surrounding District, in Worcestershire, Herefordshire and Gloucestershire," (accompanied by an excellent map illustrative of the stations of plants). The author observed that the Malvern Hills, in an undulating narrow ridge of nine miles in length, running very nearly due North and South, form "a great back-bone" between the counties of Worcester and Hereford, while Gloucestershire joins the two former counties at the extreme Southern end of the chain. The mass of syenite itself, of which the hills geologically consist, is so narrow that but little advantage would be gained by attempting to note the plants of the Hills irrespective of the District around them, most of the rarer plants in fact occurring rather in the valleys or at the base of the chain, than on the rocky summits themselves.

Mr. L. proposed to trace the vegetation of the district in three divisions, which will accord as well with the superficial aspect of the country as with its geological character; and it will then be more readily seen what influence (if any) the nature of the soil exercises upon the habitats of the various plants found within its boundaries.

The first division comprises the flat country eastward of the hills to the Severn, whose course, setting aside curvatures, is nearly parallel to the Malvern chain, the distance from the river varying in the space between Worcester and Tewkesbury, from five to about seven miles. The whole of this plain consists of red marl, with deposits of diluvial gravel in various places close to or within short distances of the river. To the South of Upton several isolated hills of lias limestone occur, and North of that town various tabular or rather roof-shaped hills of red marl, more or less covered with wood, run parallel with the Severn, and beautifully diversify the scene. Even nearer the hills, especially southwards, many fortress-like eminences start up in a picturesque manner, and, robed with foliage, greatly relieve the tame flat that would otherwise present itself. The drainage of the whole district is received by the Severn, even from the limestone on the western side of the ridge; for the Ledden, that, flowing past Ledbury, collects the streams from the southward, after a further course of ten or twelve miles flows into the Severn at Gloucester. Throughout the whole eastern plain no lake or even pool of any striking-dimensions occurs, but the streams that flow from the hills in the direction of Eldersfield, the Berrow and Longdon, being precluded from reaching the Severn directly by the intervention of steep banks of marl, and having only one outlet to that river with scarcely any fall, necessarily accumulate in the flat meadows, forming marshes of considerable extent and entirely overflowed in the autumnal season. Many efforts have been made to drain these marshes, and deep ditches beset them on every side; but having only one sluggish outlet, and being in fact in many places below the level of the bed of the Severn, it appears impracticable to provide an adequate drainage for them. However, the boundaries of the marshes have doubtless been much restricted of late years, for Mr. L. was informed that within the memory of persons still in existence, the ague was a common complaint in all the neighbouring parishes, but is now almost unknown; and the author had met with men who could tell tales of thirty years ago or more, when the *ignis fatuus* or wild-fire has led them a strange midnight dance, though now unseen for many a day.

Mr. Lees proposed to treat of the two other divisions in future papers; and the present paper concluded with a copious list of habitats, and specimens of all the plants (many of which were exhibited) are deposited in the Society's herbarium: and it is the intention of Mr. L. to send the Society specimens of all the plants (including Cryptogamia) in the Malvern district.

The following are the habitats of some of the interesting plants.

Isatis tinctoria: On a precipitous cliff of red marl forming the left bank of the Severn, immediately opposite Sarn Hill, at a place called the Mythe, one mile North of Tewkesbury, and a few hundred yards from the new iron bridge over the river. Mr. L. had noticed this plant here for above twenty years. *Konigia maritima*: Near the chalybeate well, Great Malvern: found in August 1841. *Vicia Bithynica*: In a field East of Malvern Wells, between the Admiral Benbow and Benbow's Farm-house. In the original edition of 'English Botany,' Dr. Abbot is said to have gathered it a few miles to the North of Great Malvern. *Smyrniolum Olusatrum*: On the red marl cliff at the Mythe Tont above Tewkesbury, close to the Severn, where some underwood extends up the acclivity. *Iris fetidissima*: On Sarn hill, near Forthampton, very luxuriant. Also at Cruckbarrow, South of Worcester, and on the Berrow hill, two miles from the southern end of Malvern chain eastwards. *Crocus vernus*: Battenhall, a little South of Worcester. *Dipsacus pilosus*: Below the Abbey, Malvern, eastward, and Bubble Brook, Worcester. *Verbascum Blattaria*: Forthampton, and between that place and Longdon. *Senecio squalidus*: Old buttresses, Worcester. *Delphinium Consolida*: On the border of Welland Common. *Helleborus fatidus*: Cotheridge. *Ornithogalum umbellatum*: Cotheridge, between Worcester and Malvern.—G. E. D.

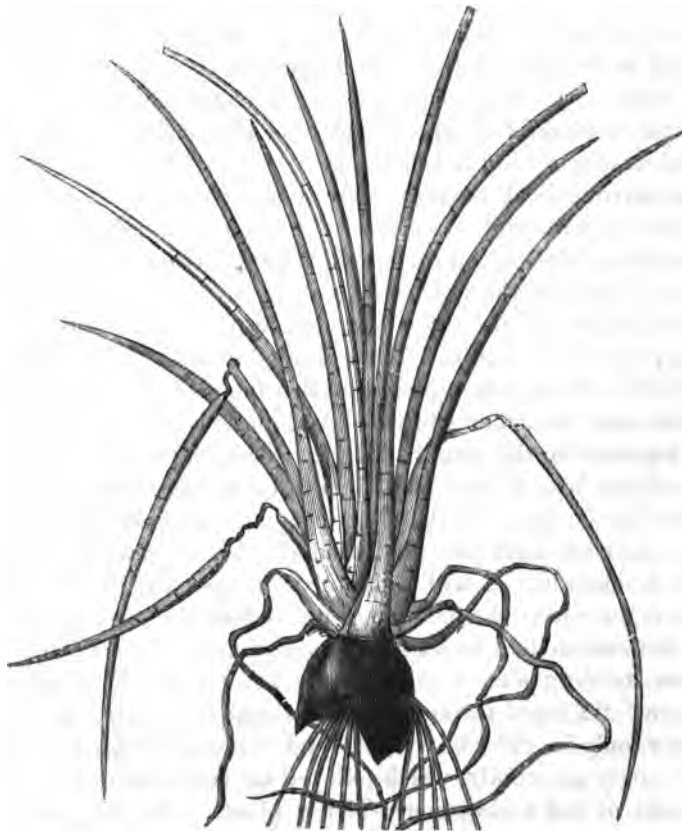
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ART. LI. — *A History of the British Lycopodia and allied Genera.*
By EDWARD NEWMAN. (Continued from page 86).



QUILLWORT.

ISOETES LACUSTRIS of Authors.

LOCALITIES.

England.	} In the lakes of all our mountain districts.
Wales.	
Scotland.	
Ireland.	

THE Quillwort, though confined to our mountain lakes, is an abundant plant in such situations, clothing the bottoms of the deep and still waters with a perennial verdure, and supposed by the casual tourist to be a submerged grass. In the North of England it occurs abundantly; and I am indebted to Miss Beever, of Coniston, for an abundant supply of living specimens from that neighbourhood: had it not been for that lady's kind and timely assistance, I should have been unable to draw up a satisfactory description of this curious plant; since in dried specimens many interesting characters are lost. In Ireland and Scotland I observed it more or less abundantly in every lake I had an opportunity of searching.

In Caernarvonshire I have found it in more than a dozen of the little lakes which abound in the Snowdon range, and this appears to have been one of the earliest recorded habitats. It was found in Ogwen, Lyn-y-Cwn, and the Lakes of Llanberis, by Llhwyd, Ray, Richardson and Dillenius, the latter of whom waded into the waters of Llanberis purposely to find it. The imagination of a botanist delights to picture the Sherardian professor in this interesting situation; his shoes, with their enormous silver buckles, and his grey-ribbed hose, are seen reposing on the strand; his important bag wig and his formidable military hat, sharply looped on three several sides, adorn his learned head; the ample skirts of his coat are gathered on one arm, whilst the other hand grasps a gold-headed cane, wherewith to uproot the brittle Calamaria. I will quote the entire passage in which this adventure is recorded; the mention of uncomfortable lodgings will be amusing to those modern botanists who have feasted in the palace-like hotel, now standing almost on the site of the philosopher's pathetic lamentation. "I found the common *Subularia folio rigido*, mentioned to grow only in Phynon Vreech, and the *Juncifolia cochleariæ capsulis** pretty plentifully, which relieved me very much of our disappointment of not seeing more Glyder plants. In the lake near Llanberis, a little further on, where you found the *Subularia fragilis, folio longiore et tenuiore*, cast out of the lake, I pulled off my shoes and stockings, and found it growing there in great plenty. If any

* "*Subularia aquatica*," [Sm.]

body had the means of fishing out plants from the depths of these lakes, I am inclined to think he might find strange things. Near this place, about three years ago, Mr. Evans, coming home late from a christening, in stormy and rainy weather, was drowned. His corpse could not be found by any means used for fishing. There being no parson living at the place at present, it is almost impossible for any body to go herborizing thither. We had very hard and uncomfortable lodging at the alehouse, and with difficulty got a young man to be our interpreter and guide. At last young Mr. Evans, of Bangor, gave us leave to lie at his house, and sent us provisions from Bangor.

"If some rich botanist, that has no relations or children, would build a house there, and buy some land to it, which might be done with little money, it would be a very kind invitation for botanists to visit these strange places, and be an inducement for making a collection of Welsh plants, as you proposed. Without such a fixed place of abode, it seems to me impracticable." *

Dillenius learned from the mountaineers of the neighbourhood, that fish feed on the *Isoetes*; and that when detached from its hold in the soil and cast on shore, the cattle devour it greedily and grow fat on it.† The passage is rather obscurely worded, and its meaning seems to have been mistaken by compilers, who make it fatten the fish, and leave the bullocks out of the question.

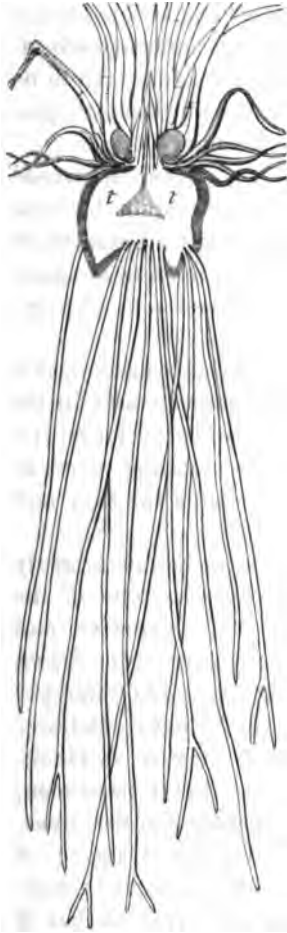
The figures by Dillenius are striking, but in some points scarcely accurate. That in the '*Flora Danica*' (191) possesses none of the characteristics which distinguish the root of our British species, and this part of the drawing is either supplied from imagination or drawn from a species hitherto undiscovered in this country. The same observation applies to the figure of the capsule in '*English Botany*,' (1084), where that part is represented as bivalved. Sir W. J. Hooker's figure in the '*Flora Londinensis*' is the best that I have seen, but in this there is an indistinctness in the representation of the tuber, and a reference to certain scales on the capsule, the existence of which I have been altogether unable to detect. In Loudon's '*Encyclopædia of Plants*' (894), the capsule of *Pilularia* is given as that of *Isoetes*, and that of the latter is entirely omitted.

The roots are three or four inches in length, flexible, semipellucid, of uniform substance, tubular, and sometimes dichotomously divided

* Linn. Correspondence, ii. 143.

† Referunt monticolæ pisces, quos habent optimi generis, utraque hæc herba vesci, et armenta, si projectam inveniant, avidè devorare et pinguescere. Hist. Musc. 542.

towards the extremity. They spring from a tuber, which, in mature plants, is about the size of a hazel-nut. This tuber seems analogous to what I have called a tufted rhizoma in ferns: it is of various form, commonly, however, slightly bilobed; its external coating is spongy,



and of a dark brown colour approaching to black, and apparently composed of decayed portions of its substance: the interior is very compact and of a pure white, with a small and nearly pellucid portion in the centre, whence the leaves appear to originate. The taste of this tuber is earthy, but not otherwise remarkable, and it seems perfectly innoxious, as I have eaten several without injury. A longitudinal section of the tuber (*t t*) with its attached radicles, is shown in the margin. Wahlenberg says that this tuber vegetates in the interior while dying round the circumference,* a mode of accounting for its appearance which seems highly probable.

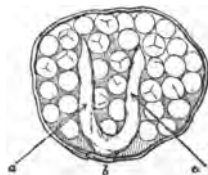
The leaves are sessile, and rise from the crown of the tuber; at the base they are very broad, and furnished with membranous margins, which clasp the inner leaves much in the same manner as the scales of a lily-bulb. With the exception of this basal portion, the leaves are nearly cylindrical, sometimes however approaching to a quadrate form, with obtuse angles, and terminating in a sharp point; they are hollow, the interior being divided by longitudinal septa into four tubes, which are again subdivided into numerous compartments by transverse septa placed at irregular distances: these transverse septa are very apparent through the semi-pellucid substance of the leaf, and give it a jointed appearance. The leaves are extremely brittle, and usually break at these apparent joints. They are persistent,—the plant being in every respect an evergreen, whence the Linnean name of *Isoetes*,† signifying that its appearance

* *Flora Lapponica*, 204.

† *ισος* æqualis, *ετος* annus.

is alike throughout the year. The exterior leaves decay slowly and in order of priority, the decay commencing in each leaf about an inch above the crown of the rhizoma and extending upwards and downwards; the decayed portion soon loses its rigidity, the upper part bending over and becoming prostrate. The leaf retains its attachment long after its vitality has ceased; and numerous leaves so attached fall over the tuber and its radicles when the plant is taken from the water, and, mingling with the latter, are preserved as such in most of our herbaria. Leaves in a state of decay are shown in the figure at the head of this article.

The fructification of the Quillwort is very curious. It consists of capsules or thecæ, about the size of swan-shot, placed singly at the base of each leaf, in the very substance of which they are imbedded; only a very small portion of the capsule being visible through a circular aperture in the anterior face of the leaf. In this structure alone does it differ from *Lycopodium*, in which genus the theca is quite distinct, although perfectly sessile in the axil of the leaf, and removable without injury to the leaf itself. The substance of the theca is hard though membranous; it is attached at a single point (*b*) on its posterior surface, to something which appears analogous to a midrib of the leaf. The figure in the margin represents a theca removed from its cavity in the leaf: from its point of attachment (*b*) arise what appear to be two free placentæ (*a a*), for the attachment of the seeds, yet I cannot positively assert that such is their office, for I have never opened a theca without observing that the seeds escaped, as if entirely without attachment. Wahlenberg speaks of these bodies as being *many*;^{*} from this statement, and that author's surpassing accuracy, I am inclined to suppose the few thecæ which I have had the opportunity of examining in a recent state to be exceptions to the general rule, especially as in the generic character of *Isoetes* in 'English Flora' (iv. 343), Sir J. E. Smith describes the capsule of the fertile flowers as having "several transverse bristle-shaped bars." The seeds themselves are rugose and perfectly white; they have raised ridges on the surface, indicating a quadruple division; indeed, when thus divided, the inferior half of each seed is nearly hemispherical, and the superior half may be again divided into



^{*} Ex illo receptaculo fructus longitudinali oriuntur plura receptacula seminum seu partialia filiformia, &c. Fl. Lap. 295.

three sub-triangular portions. When crushed, even after the lapse of years, these seeds are found to be filled with a transparent and somewhat oleaginous fluid. Other thecæ contain apparent seeds, which are extremely minute, being scarcely equal in size to the pollen-granules of many flowering plants: these minute bodies possess the form and characters of the larger seeds. The thecæ containing the two kinds of seed are scarcely to be distinguished from each other, nor do they follow any law in their relative position, as many of our botanists have asserted, but most frequently occur alternately. Linneus, in his 'Iter Scanicum,' has described these as male and female flowers,* but botanists are not agreed as to their precise nature, the question, when discussed, must comprise the kindred twofold fructification of *Lycopodium Selaginoides*, and probably many other species: the real nature of the four portions into which each (supposed) seed is divisible, also requires further investigation. I am too superficial a botanist to offer an opinion on so important a subject.

Mr. Valentine, whose valuable paper on the structure and development of the organs of *Pilularia*, in the 18th vol. of the *Linnean Transactions*, has already been noticed in this work (*Phytol.* 55), has made some interesting observations on the germination of *Isoetes*, which I hope may eventually be given to the public.

There are two forms of *Isoetes*, so different that Dillenius, and, in some of his works, even Linneus, treat them as distinct species; thus in the passage quoted from Dillenius, at p. 154, they are designated "*Subularia folio rigido*" and "*Subularia fragilis*;" and in his great work, the '*Historia Muscorum*,' the same author describes them as "*The short and thick-leaved Quillwort, Calamaria folio brevior et crassior*," and "*The long and slender-leaved Quillwort, Calamaria folio longior et gracilior*;" and enters very clearly into their distinguishing characters.† The following paragraph from a letter of Linneus to Haller, written in 1749 and printed in Smith's 'Selection of

* *Masculi flores* solitarii intra basin foliorum interiorum. *Cal.* Squama cordata, acuta, sessilis. *Cor.* nulla. *Stam.* Filamentum nullum. *Anthera* subrotunda, unilocularis, intra basin folii sita.

Feminei flores solitarii in eadem planta, intra basin foliorum exteriorum. *Cal.* ut in masculis. *Cor.* nulla. *Pist.* occultum. *Per.* Capsula subovata, bilocularis, intra basin folii sita. *Sem.* numerosa, globosa.

† *Calamaria folio longior et gracilior.* The long and slender-leaved Quillwort. A precedenti differt foliis longioribus angustioribus et rectioribus: radix porro durior, minus tuberosa, minusque crassa est et fibræ ejus breviores sunt et magis ramosæ, cæteroquin foliorum texturam, colorem, semina et reliqua habet communia. *Hist. Musc.* 541, tab. LXXX.

the Correspondence of Linnæus, &c.' ii. 433, proves that this great botanist considered the two forms to be species.—“In Scania I have met with the flowers, male as well as female, of both species of *Calamistrum*, figured by Dillenius, in his *Historia Muscorum*, by the name of *Calamaria*.”

Gray, in his ‘Natural Arrangement of British Plants,’ makes two varieties in addition to the normal form of the plant, and describes them as follows.

β. gracilis. Leaves long, slender.

Calamaria folio longiore et graciliore. Dill. M. 541.

γ. fragilis. Leaves very brittle, slender, pointed, transparent, pores numerous, minute.

Subularia fragilis, folio longiore et tenuiore. Raii Syn. 307. 3.

By a reference to Ray* it will be seen that this *Subularia fragilis* is an addition by Dillenius, and is doubtless identical with the *Calamaria folio longiore* &c. of that author; the forms are thus again reduced to two, and concerning these Mr. Wilson, who has paid great attention to the subject, kindly sends me his opinion in the following words.

“The solitary plants with short spreading leaves, I believe to be the first full development after the seedling state, and before any lateral extension of the rhizoma has taken place: when the plants are crowded together, either by lateral increase (or offsets) or by a multitude of individuals in close contact, the fronds can grow only in an erect posture. In a specimen from Llyn Ogwen, the tallest I have, and which I cut through the middle before drying, the section of the rhizoma or tuber is very large, while in another specimen, gathered in the same place, and at the same time, the rhizoma is very small and inconspicuous; in a third specimen the rhizoma is very broad and concave at the base. The size of the tuber may depend on the age and vigour of the plant; its analogy with the rhizoma of ferns I think considerable: when a number of the outer or lower fronds have ripened and dropped off, then and not before it becomes exposed to view.”

Mr. Sansom has given the two supposed species a minute and careful examination, and has favoured me with the following remarks.—“In the diffuse variety the seeds are globular or nearly so, and the sutures in many cases very indistinct, while in the erect plant the seeds are angular, the angles appearing to be formed by the swelling of the edges of the sutures, and thus giving it an angular appearance. Again, the texture of the seed is different; in the diffuse plant it has a slightly pellucid appearance, while, in the erect variety, they are of a firmer

* Syn. Ed. 3, p. 307.

texture, appearing quite white and horny." Mr. Sansom, however, suggests, with great propriety, the probability of the seeds which he examined being in different stages of maturity; those which I have examined do not exhibit the differences which he has pointed out.

The following definitions appear to me to express the distinguishing characters of the two forms.

- a. Normal form. Fronds 6 to 15 in number, 2 to 5 inches in length, spreading, very brittle: tuber as large as a hazel-nut, slightly bilobed; radicles about as long as the leaves, rarely divided. This form is represented in the figure at the head of this article; the full length of the radicles being shown at p. 156.
- β. Slender form. Fronds 20 or more in number, 12 or 18 inches long, very erect and compact together: tuber very small, mostly to be distinguished with difficulty; radicles less than one fourth the length of the leaves, frequently divided.

The two forms grow together in the lakes of England, Scotland and Wales.

EDWARD NEWMAN.

(To be continued).

ART. LII.—*List of Plants found in Devonshire & Cornwall, not mentioned by Jones in the Flora Devoniensis, with remarks on the rarer Species.* By The Rev. W. S. HORE, M.A., F.L.S., G.S.*
Communicated by EDWIN LANKESTER, M.D., F.L.S., F.B.S.E.

It was my intention to have prepared a list of the plants indigenous to the counties of Devon and Cornwall, accompanied with remarks on the rarer species, but when I considered that a Flora of the former county existed, published about twelve years since, I determined on limiting my observations to an enumeration of such species as have since been discovered in Devon, and those which are found in Cornwall, but which have not been met with in the sister county. The latter are so few in number, that Jones's 'Flora Devoniensis' may be considered as a Flora of the two western counties, and the whole district, when geographically viewed, would induce us to arrive at the conclusion that much discrepancy could not possibly exist in their natural productions. In the eastern portion of Devon, where the geological aspect of the county begins to merge into the newer formations of Dorsetshire and Hampshire, we might indeed be inclined to expect a more distinctly marked vegetation, and some plants not to be found towards its western limits; this however is not the case, for with the exception of that singularly rare plant—*Lobelia urens*, which is confined to the neighbourhood of Axminster, no distinct plants have as yet been detected. A similar result obtains with reference to the interior part of the county, where, notwithstanding some of the tors of Dartmoor reach the lower limits of the Upland Region of Watson, no plants characteristic of that region have been discovered, except *Listera cordata*, recently found by Mr. Ward, on Coddon Hill, near Barnstaple.

We may therefore view these two western counties, with a portion of Somerset, i. e. Exmoor and its vicinity, as forming one large botanical district, connecting England

* Read at the Meeting of the British Association held at Plymouth, August, 1841.

with Brittany and Normandy by means of the Channel Islands, and manifesting such connection by the following plants:—*Trichonema Columnæ*, *Iris foetidissima*, *Asplenium lanceolatum*, *Erodium moschatum*, *Herniaria ciliata*, *Scilla autumnalis*, *Arthrobium ebracteatum*, *Lotus angustissimus*, *Hypericum linariifolium*, &c. To enter into a detailed account of the geological aspect of the district would be superfluous, as Jones in his Flora has been at some pains to describe it accurately as regards Devon, and with the exception of the serpentine of the Lizard, the same remarks may be supposed equally applicable to the county of Cornwall.

The number of Phanerogamous species described in the 'Flora Devonensis,' amounts to 774: to these must be added 41, for species since detected in the same county, or separated from others of which they were supposed to be mere varieties. Of these 41, 15 are also found in Cornwall. There are also 31 species peculiar to the latter county, not natives of Devon. The western Flora would therefore contain 846 species,—a number certainly not too great for the extent of surface included within its limits, and the variety of soil and other peculiarities which it presents.

Jones adopts the Linnæan classification, which, for convenience, I shall now follow in enumerating the additions &c. made since the publication of his work.

Veronica Buxbaumii, Ten. Occurs both in Devon and Cornwall, but not abundantly: it appears limited to the fields which have been recently ploughed, and disappears in a season or two.

Veronica polita, Fries. Not uncommon in this neighbourhood.

Pinguicula vulgaris, Linn. Mr. Ward found this plant in a bog near Ilfracombe, on the road to Morthoe. I had previously heard that it grew there.

Trichonema Columnæ, Reich. On the Warren at Dawlish. No plants were found there last year.

Fedia Auricula, Gaud. Lindulph, Cornwall, according to the Rev. Mr. Bree. Bolt Head, Devon, Mr. Babington.

Scirpus Holoschaenus, Linn. Jones says of this plant that it is now probably exterminated at Braunton Burrows, its only habitat, by draining and cultivation, as a search for it in the summer of 1820 was unsuccessful. Watson, in his Botanist's Guide, gives the following directions:—"Braunton Burrows, in hollows or flats among the sand hills. The keeper of the light-house knows the plant, and pointed out one of the stations to me about half a mile to the right of the light-house." I easily found this spot last autumn, which I believe to be the only one where the plant is now to be found. Miss Hill writes me concerning it as follows:—"The large spot where those rushes grew is now covered with blown sand, but a new place has been found. I do not think the present plants so large as those I have collected at the old spot thirty years since, and much within that time."

Cyperus longus, Linn. Miss Warren informs me that it grows near Truro, Cornwall.

Scirpus Savii, Spreng. Common on the borders of Dartmoor: Cornwall.

Briza minor, Linn. Near Torpoint and Truro, Cornwall.

Cynosurus echinatus, Linn. Under the Hoe, Plymouth, but I fear an outcast from a garden.

Avena pubescens, Linn. Catdown Quarries, Plymouth.

Brachypodium pinnatum, Beauv. I have never seen this plant in Devon, where Jones says it is common.

Bromus velutinus, Schrad. var. β . On the Cornish cliffs. Sir W. J. Hooker and Mr. Johns, who first directed attention to it, now think it only a variety of *B. mollis*.

Lotium arvense, With. Corn-fields, Devon.

Cynodon Dactylon, Pers. Between Penzance and Marazion, Cornwall.

Asperula arvensis, Linn. Near Plymouth. This plant was discovered some years since by my friend Mr. Johns, but has now disappeared. As it has since been found in cultivated fields in this neighbourhood, I fear that it can hardly be recognized as indigenous.

Eracum filiforme, Sm. Jones gives Stackhouse, a Cornish botanist, as his authority for considering this species as Devonian, who says it is more common in this county than in any other. Stackhouse must have mistaken some other plant for it. There are a few habitats for it in Cornwall.

Sagina maritima, Don. Common on the coasts of both counties.

Myosotis collina, Hoffm. Very common on stone walls near the sea in April and May.

Erythraea littoralis, Hook. Banks of the Teign, Devon.

Erythraea latifolia, Sm. On the cliffs of Devon and Cornwall.

Atropa Belladonna, Linn. In hedges at Combmartin, N. Devon; possibly an escape from a garden. I was informed that the village schoolmaster used the berries in the manufacture of ink.

Lonicera Periclymenum, Linn. A variety of this honeysuckle, with leaves resembling those of the oak, grows at Bovisand.

Viola Curtisi. Abundantly on Braunton Burrows. It is very distinct in its simple mode of growth, and the elongated form of its corolla, from *Viola tricolor*.

Trinia glaberrima, Hoffm. Berryhead, Devon.

Physospermum Cornubiense, Cuss. In an oak coppice near Tavistock, about a quarter of a mile from New Bridge. Bodmin, Cornwall.

Chenopodium botryodes, Sm. Banks of Looe Pool, Cornwall.

Ulmus stricta, Lindl. N. Devon and Cornwall.

Tamarix gallica, Linn. Lizard, Cornwall.

Statice spathulata, Desf. I believe the species found near Torquay to be this plant. Whitsand Bay, Cornwall.

Allium Schanoprasum, Linn. Among rocks at the Lizard and at Tintagel, Cornw.

Scilla verna, Huds. Lizard, Cornwall.

Erica vagans, Linn. Common at the Lizard.

Erica ciliaris, Linn. Wet ground near Truro, Cornwall.

Calluna vulgaris, Salisb. A double variety was found by Sir C. Lemon's gardener near Truro, and is now cultivated at Carclew.

Elatine hexandra, DeCand. Near Helston, Cornwall.

Reseda fruticulosa, Linn. Penzance, Cornwall.

Rubus casius, Linn. Catdown Quarries, near Plymouth; probably introduced with ballast.

Teucrium Scordium, Linn. Braunton Burrows.

Lamium incisum, Willd. Penzance, Cornwall.

Scrophularia Scorodonia, Linn. Penzance.

Orobancha rubra, Sm. On the serpentine district of the Lizard, Cornwall.

Orobancha barbata, Poir. Torquay, Devon.

Erysimum orientale, Br. The Rev. J. Tozer says "that it came up spontaneously in a field that had been ploughed to form a garden, in the centre of the new square at Plymouth."

Geranium sanguineum, Linn. Kynance Cove, at the Lizard, Cornwall.

- Althæa officinalis*, Linn. Maristowe, Devon.
Polygala oxyptera. Salcombe, Devon: Mr. Babington.
Genista pilosa, Linn. Lizard, Cornwall.
Vicia lutea, Linn. Lizard, Cornwall.
Trifolium ornithopodioides, Linn. Torpoint, Cornwall.
Trifolium incarnatum, Linn. var. β . *Molinerii*. I found this plant in two places, about a quarter of a mile distant from each other, in 1839, near the Lizard light-house. One of the localities was on the verge of the cliff, where the turf had never been disturbed.
Trifolium Bocconi, Sav. Found by Messrs. Borrer and Babington at Cadgewith, Cornwall, but in small quantity.
Lotus angustissimus, Linn. Whitsand Bay, Cornwall, with the following species. Also near St. John's, Cornwall.
Lotus hispidus, Desf. Dartmouth, Devon. Whitsand Bay and Lizard, Cornwall.
Hypericum linariifolium, Vahl. Found by Messrs. Borrer and Babington at Cape Cornwall, near the Land's End. The Rev. W. Hinckes has specimens from Devon.
Tragopogon porrifolius, Linn. Brere Church-yard, Devon.
Hypochaeris maculata, Linn. Lizard, Cornwall.
Chrysocoma Linosyris, Linn. Berryhead, Devon.
Gnaphalium dioicum, Linn. Camborne, Cornwall, as recorded in Watson's Botanist's Guide.
Gnaphalium sylvaticum, Linn. var. β . *rectum*. Shaugh Bridge, Devon.
Senecio squalidus, Linn. Walls at Bideford, Devon.
Limbarda crithmoides, Adans. Near Bovisand, Devon. Whitsand Bay, Cornwall.
Gymnadenia conopsea, Br. On a down near Helston, Cornwall.
Listera cordata, Br. Coddon Hill, Barnstaple: Mr. Ward.
Malaxis paludosa, Sw. I have only seen a single Devonshire specimen, which was gathered by a friend on Dartmoor, near South Tawton.
Euphorbia platyphylla, Linn. Torpoint, Cornwall.
Euphorbia hiberna, Linn. Near Glenthorne; Mr. Ward, jun. Near Lynton, Devon; Miss Griffiths.
Mercurialis annua, Linn. Quarries, Plymouth, possibly imported with ballast.
Asplenium lanceolatum, Huds. Several places in this neighbourhood. Penzance, Cornwall.
Hymenophyllum Wilsoni, Hook. On rocks above Shaugh Bridge, Devon.
Herniaria ciliata, Bab. Lizard, Cornwall.
Viola lutea, Huds. Land's End, Cornwall.
Arenaria verna, Linn. Lizard, Cornwall.
Stachys ambigua, Sm. Near the Land's End, Cornwall; Mr. Watson, in his Botanist's Guide.
Papaver somniferum, Linn. Near Sidmouth, Devon; and Penzance, Cornwall; Mr. Watson.
Oxalis stricta. Penzance, Cornwall.
Galium erectum, Huds. Near Plymouth; Mr. Banks.
Aithrolobium ebracteatum. On Trescan, one of the Scilly Islands.
I may also mention that two northern ferns were discovered by Mr. Ward, jun., last summer, on Exmoor and near Glenthorne, viz., *Cryptogramma crispa* and *Asplenium septentrionale*; neither of which had previously been recorded as natives of the West of England.

W. S. HORE.

ART. LIII. — Notice of '*The London Journal of Botany*,' being a New Series of '*The Journal of Botany*.' By SIR W. J. HOOKER.
London : Baillière, Regent Street.

It is with feelings of unmingled satisfaction that we announce the present spirited recommencement of this invaluable work. While we are endeavouring to render our pages as popular as scientific accuracy will permit; and while we avowedly give the preference to everything connected with *British Botany*, the '*Journal*' must attract those laborious and erudite papers, which, although invaluable as works of reference, are scarcely calculated for the hasty perusal of those readers who seek in a periodical the passing information — the botanical chit-chat of the day: it must also continue to obtain those minutely descriptive latin lists of exotic novelties which have hitherto rendered its pages so acceptable to the technical botanist. Our little ephemeral will be contented with those lighter contributions — those unstudied brevities and observations which, delightful though they be to ourselves and to numbers of our readers, would detract from the scientific dignity of the graver '*Journal*.'

Thus each of these botanicals will take what the other is glad to give, and so promote the prosperity of its friendly rival. Influenced by these feelings, we wish the "*New Series*" every success; and though our narrow limits preclude the possibility of giving anything like an analysis of the numbers as they appear, we purpose always giving a list of the articles, and occasionally transferring to our chapter of "*Varieties*" any paragraph relating to *British Botany*, which we think will be interesting to our readers. The following are the contents of the two numbers already published.

I. Notes on a Botanical Excursion to the Mountains of North Carolina, &c. with some remarks on the Botany of the higher Alleghany Mountains. (In a letter to Sir W. J. Hooker; by *Asa Gray, M.D.*) II. Notes upon Cape Orchidaceæ; by *Professor Lindley*. III. Descriptions of several New Genera of South-African Plants; by *The Hon. W. H. Harvey*. IV. Some Account of the Paraguay Tea, (*Ilex Paraguayensis*); by *The Editor*. Botanical Information: containing Notice of New British Plants—1. *Equisetum elongatum*, of Willdenow. 2. *Chara latifolia*, Willdenow. 3. *Polyporus nitidus*, Fries; the latter found by H. O. Stephens, Esq. on the decaying bark of trees near Bristol. Notices of Botanical Works. — Endlicher's *Genera Plantarum*. Endlicher's *Iconographia*. A Manual of British Algæ, &c. by the Hon. W. H. Harvey. Steudel's *Nomenclator Botanicus seu synonymia plantarum universalis* Ed. 2. Contributions to the Flora of India, by William Griffith. *Arboretum et Fruticetum Britannicum*, by J. C. London. V. The Plants of the Grampians viewed in their relations to altitude; by *Hewett Cottrell Watson, Esq.* — This is a carefully prepared list of more than 400 plants; the altitude attained by each species in three different localities being given: the list is preceded by many valuable observations. VI. Description of *Trochopteris*, a new genus of Ferns; by *George Gardner, Esq.* VII. Notices of some plants new to the Flora of Britain; by *Hewett Cottrell Watson, Esq.* — Short notices of the discovery of these plants, — *Linaria Bauhini*, *Lolium multiflorum*, and *Bromus commutatus*, will be found in the Report of the Proceedings of the Botanical Society of London (Phytol. 136). Botanical Information: — Extracts of letters from Mr. Drummond, dated King George's Sound, Swan River, &c., and from Dr. F. W. Hostman, dated Paramaibo. VIII. Biographical Sketch of the late Allan Cunningham, Esq.; by *Robt. Howard, Esq.*

ART. LIV.— *Varieties.*

111. *List of Plants in the vicinity of Lytham, Lancashire.* If the following List of plants found in the vicinity of Lytham, in July, 1841, is likely to be interesting to any of the readers of 'The Phytologist,' it is at your service. —

Salicornia herbacea, salt marshes.	Alisma Plantago and ranunculoides.
Hippuris vulgaris, ditches.	Epilobium hirsutum and tetragonum.
Lycopus europæus, Lytham Common.	Pyrola media, Lytham Common.
Iris Pseudacorus.	Silene maritima, pastures near the sea.
Scirpus maritimus, Lytham marshes.	Arenaria Peplodes, serpyllifolia, and marina.
Eleocharis palustris.	Sedum acre.
Ammophila arundinacea, Star hills.	Spergula nodosa, Lytham Common.
Briza media.	Lythrum Salicaria.
Lolium perenne and arvense.	Agrimonia Eupatoria, Lytham Common.
Rottbollia incurvata, marshes.	Rubus cæsius, ditto.
Triticum junceum, Star hills.	Reseda Luteola.
—— repens.	Potentilla reptans.
Sherardia arvensis.	Thalictrum minus.
Galium verum, pastures near the sea.	Stachys palustris.
Plantago maritima and Coronopus, ditto.	Clinopodium vulgare, Lytham Common.
Parietaria officinalis.	Thymus Serpyllum, pastures.
Cynoglossum officinale, Star hills.	Prunella vulgaris.
Lycopsis arvensis.	Bartsia viscosa and Odontites.
Hottonia palustris.	Pedicularis palustris, Lytham Common.
Anagallis arvensis.	Linaria vulgaris.
—— tenella, Lytham Common.	Lepidium latifolium.
Solanum Dulcamara.	Cochlearia anglica, Lytham marshes.
Erythraea Centaurium.	—— danica, Blackpool.
Samolus Valerandi, Lytham Common.	Coronopus Ruellii, ditto.
Glaux maritima.	Cakile maritima, Star hills.
Chenopodium maritimum and olidum.	Sisymbrium Sophia.
Salsola Kali, salt marshes.	Brassica Monensis, Star hills.
Gentiana Amarella, Lytham Common.	Erodium cicutarium.
Eryngium maritimum, Star hills.	Malva rotundifolia.
Torilis Anthriscus.	Fumaria officinalis.
Daucus Carota.	Ononis arvensis.
Helosciadium nodiflorum.	Anthyllis vulneraria, pasture near the sea.
Sium angustifolium.	Trifolium arvense.
Conium maculatum.	Tragopogon major, Lytham Common.
Oenanthe Phellandrium.	Apargia hispida.
Apium graveoleus.	Arctium Lappa.
Pastinaca sativa.	Carduus tenuiflorus, hedges.
Parnassia palustris, Lytham Common.	Carlina vulgaris, Lytham Common.
Statice Armeria, pastures near the sea.	Bidens tripartita.
Linum catharticum.	Artemisia vulgaris.
Asparagus officinalis, Star hills.	Erigeron acris, Lytham Common.
Triglochin maritimum and palustre, marshes.	Senecio aquaticus.

Aster Tripolium, Lytham marshes.	Euphorbia Paralias, Star hills.
Solidago Virgaurea, Lytham Common.	———— Helioscopia.
Pulicaria dysenterica.	Sparganium ramosum and simplex.
Orcis latifolia, Lytham Common.	Urtica pilulifera, pastures near the sea.
Listera ovata, ditto.	Myriophyllum spicatum.
Epipactis latifolia, ditto.	Asplenium Ruta-muraria.
———— palustris, ditto, abundant.	— <i>N. Buckley</i> ; 22, <i>Grafton St. Fitzroy</i>

Square, October 18, 1841.

112. *Enquiry respecting Sieber's 'Synopsis Filicum.'* Is it in accordance with the plan of 'The Phytologist' to make such an enquiry as the following to the readers of that useful periodical? On Sieber's return from Martinique and the West India Islands, he brought back a number of specimens of ferns, an account of which was published under the title of 'Synopsis Filicum,' and numbered. This is not the 'Synopsis Filicum' of Swartz, and I suspect it was a paper published in some foreign periodical. Can any of your readers inform me where Sieber's 'Synopsis Filicum' is to be met with? Sieber's ferns are well known, and his 'Syn. Fil.' is referred to by Kaulfuss and Presl; but I can nowhere meet with any account of it. Sieber's name is mentioned as an authority in the Addenda to Linnaeus's 'Systema Vegetabilium,' edited by Sprengel, or the second part of the 4th vol.—*J. Riley* ; *Pepplewick*, October 28, 1841.

[Mr. W. Pamplin has kindly sent us the following reply to the above enquiry; we shall be glad to receive further information on the subject from any correspondent].

Sieber's Ferns. To the best of my belief the citation of "Sieber, Synopsis Filicum," in Presl, Sprengel, and others, does not apply to any printed publication, but rather to the numbers upon the printed tickets which accompany his collections of specimens distributed among individual purchasers.—*W. P.*

113. *Death of J. E. Bowman, Esq., F.L.S., F.G.S., &c.* The readers of the *News* will perceive in our obituary of this week the death of our estimable and respected townsman, John Eddowes Bowman, Esq., which melancholy event took place at his residence near Manchester. The *Manchester Guardian* of the 11th instant pays the following just tribute to the benevolent character and literary acquirements of the deceased, and which we insert in preference to giving any lengthened eulogy of our own:—"The death of this very intelligent and excellent gentleman, which was noticed in our last number, will be a great loss to science. He was indefatigable in the pursuit of knowledge, and his time and talents were most willingly devoted to its advancement. In his botanical and geological investigations he displayed a perseverance, activity, and acuteness, seldom surpassed; and he had no greater pleasure than in the discovery and communication of any new fact illustrative of the wisdom, power, or benevolence of the Deity. Soon after the commencement of his residence in Manchester, he became intimately acquainted with the different cultivators of kindred studies: and by the activity of his mind, and his zeal for the promotion of knowledge, no less than by the accuracy and solidity of his own acquirements, proved one of the most valuable and efficient members of the principal scientific institutions of this town and neighbourhood. His exemption from the absorbing avocations of business enabled him to concentrate his whole attention on objects of science, and to afford a kind and degree of assistance in promoting them, which few others had it in their power to give, and which it will not be easy to replace. To those who had the happiness of enjoying his private friendship he was endeared by the amiable cheerfulness

and simplicity of his manners, by his unaffected readiness to communicate information, and by his generous ardour in behalf of every object and institution connected with the diffusion of knowledge, and with the extension of the means of human virtue and happiness. Those who knew him most intimately can best appreciate his genuine piety and benevolence of heart, which formed the animating principle of his character, and pervaded every relation of his domestic life. By his associates in the Literary and Philosophical, the Natural History and Geological Societies of Manchester, his memory will be warmly cherished; and his death will be deeply regretted by the most distinguished members of the British Association, especially when they assemble in this town next year. His communications to the transactions of the Linnean, Geological, and other Societies, will form lasting evidence of his acquirements, and valuable memorials to his relatives and friends." — *From the Shrewsbury News of Saturday, December 18, 1841.*

114. *Locality of Trifolium stellatum.* It will be satisfactory to your correspondent Mr. Salmon (Phytol. p. 130), to learn that *Trifolium stellatum* is not lost at Shoreham, but still comes up in abundance every spring in its first-observed station—a low line of ballast-heaps, deposited, I am assured, before any present inhabitant of Shoreham can recollect, between the river and the wide bed of shingle on the seaward side of the river, overagainst the east end of the town. The plant flowers early, and a less abundant second crop is usually to be seen in the latter summer months. I once, several years ago, met with a few specimens among the shingle, overagainst Southwick; and again, on a part, now occupied by a quay, of the landward shore of the river, at Kingston. The immediate neighbourhood produces several plants worthy of notice, which Mr. Salmon has not enumerated; among them are *Salicornia radicans*, *Poa bulbosa*, *distans*, *procumbens* and *Borreri*, *Festuca uniglumis*, *Medicago denticulata* and *Borkhausia foetida*. *Vicia bithynica*, which grew formerly near Southwick, is now, I fear, lost; as well as *Chrysocoma Linosyris*, of which Mr. Trevelyan found a single plant about 1825. Of the plants mentioned by Mr. Salmon, I never saw there *Statice spathulata*, *Juncus acutus* or *Coronopus didyma*. The first of these grows near Rottingdean; the other two in the West of Sussex.—*W. Borrer; Henfield, Jan. 21, 1842.*

115. *Anagallis arvensis and cœrulea.* Five or six years ago I planted a root of the latter in a garden, and saved the seed, which I sowed the following spring; a considerable number of the plants now come up annually from self-sown seed, but always with blue corollas; not a single specimen of the red variety ever making its appearance in the garden.—*G. H. K. Thwaites; 2, Kingsdown Parade, Bristol, Jan. 26, 1842.*

116. *Note on Crocus vernus and C. nudiflorus.* It may probably be no uncommon thing to meet with individual specimens of the wild *Crocus* having more than the regular number of stamens, divisions of the perianth, &c., but as I am not aware whether this is the case, I wish to mention that in March last, when I visited the Nottingham meadows for the long-desired pleasure of gathering *Crocus vernus*, I met with three specimens having four stamens, four lobes to the stigma and eight segments to the perianth; also one, having five stamens, five lobes to the stigma and ten segments to the perianth. Can you or any of your correspondents inform me whether the leaves of *Crocus nudiflorus* are to be looked for at the same time as the flowers of *C. vernus*, or late in the autumn after its own flowering? I saw many large patches of leaves, indeed the turf of the meadows seemed in great measure composed of them, and I hoped that they might belong to *C. nudiflorus*, but on digging for the roots, they were apparently too young for flowering, and differing in no respect but greater

height from those of the flowering roots around, I fear my hopes were ill founded. I do not know that I ever saw a more lovely sight than those meadows presented in their spring attire; they were literally "glowing with beauty." — *Anna Worsley; Brislington, February 1, 1842.*

117. *Notes on Linaria spuria and L. Elatine.* In your number for the present month (Phytol. 137) are some remarks on a monstrous form of *Linaria spuria*, by Mr. Buckman. I should not have adverted to these remarks, as the monstrosity in question is of no rare occurrence, being in fact analogous to the same deformity in the flowers of *Linaria vulgaris* called *Peloria*, but that Mr. Buckman's observations are coupled with the additional assertion that *L. spuria* and *Elatine* are probably forms of one species, he having traced the identity through "numberless intermediate stages." Now if Mr. Buckman's observations are correct, the fact derived from them is one of great interest, and should serve as an additional warning to the manufacturers of species to proceed more leisurely for the future, in the use of the first and two last rules of Cooker's Arithmetic. But I am strongly inclined to suspect Mr. Buckman of having too hastily assumed his premises; and I think the source of error may be traced in *limine* from the close resemblance *Linaria spuria* and *Elatine* bear to each other in the conformation of their lower leaves when young, these being often rounded in the latter as well as in the former, for a considerable distance upwards, and in both usually more or less notched. I have frequently been deceived myself by the similarity of configuration, but I have never seen either plant when more advanced exhibiting any such ambiguity of structure as to create a doubt to which species it belonged, though I have carefully and repeatedly examined each kind in its native localities and in various parts of England, with a view, if possible, of determining a question which their close affinity naturally suggested to me. Both *Linaria spuria* and *L. Elatine* are very abundant in the Isle of Wight; the latter may be found in every field, affecting equally our stiff clays as well as our calcareous soils; the former confining itself more exclusively to the chalk, or where the subsoil is of that formation. In many places in the island the two grow intermixed, and sometimes in such abundance as nearly to cover the ground, *L. spuria* predominating over its congener. Yet in such localities I have uniformly failed in tracing any intermediate gradations between these nearly allied species, under circumstances the most favourable to the elimination of every possible variety of form and structure; hence, till proof has been brought forward to the contrary, I am justified in considering them truly distinct. This view of the case is strengthened by the geographical distribution of each species; an element, I conceive, of much greater importance than is usually supposed in determining the validity of specific difference, though to be adduced as collateral rather than as positive evidence in most instances. *L. Elatine* has a much more extended range in this country and on the continent than *L. spuria*, which is a decidedly more southern species. The limits of the first may be stated to be a little below 55° in England, and it ranges as far as Ireland to the westward, where however it is very local, if really indigenous. In Scotland it has not hitherto occurred at all, though from part of that country lying under its limitrophe parallel in England, it will probably be found ere long to inhabit the southern counties. On the continent *L. Elatine* extends somewhat higher, namely, into the South of Sweden as far as 56°, or a little beyond that parallel in Scania and Öland, where, as in Scotland and Ireland, *L. spuria* is quite wanting. The boundaries of this last may be assumed at about 54° in England (Malton corn-fields, Yorkshire?), beyond which its occurrence on rubbish and ballast heaps must be considered

as merely fortuitous, and it sensibly diminishes in frequency in all the western counties, nor does it reach, like *L. Elatine*, to any part of the sister kingdom. On the continent *L. spuria* has apparently the same limits to the northward as with us, being absent from Denmark proper, though found in the neighbouring dutchy of Holstein under the same parallel as Yorkshire. As I have already remarked, *L. spuria* is more attached to certain soils, and to tillage lands, being rarely seen beyond the limits of cultivation, whilst *L. Elatine* I have repeatedly gathered, though sparingly, in places very dissimilar and remote from arable ground, even on heaths and in spongy bogs, by ditch-banks, &c. The *Peloria* form has not come under my notice in the Isle of Wight, but I have gathered it in corn land near Winchester, affecting both the species alike, and exactly in the way Mr. Buckman describes. It now only remains that I should notice the possibility that Mr. Buckman's "intermediate stages" may have resulted from cross impregnation, an accident to which plants of this natural order seem peculiarly liable, witness *Scrophularia*, *Verbascum*, &c. We have a beautiful hybrid occasionally produced in the Isle of Wight, between *Linaria repens* and *L. vulgaris*; it is therefore by no means unlikely that the same thing may happen with two other species of the genus still more nearly allied. The subject is well worth Mr. Buckman's investigation; and it is to be hoped that he will favour your pages with whatever conclusions he may hereafter arrive at.—*Wm. Arnold Bromfield; February 4, 1842.*

118. *Note on the British species of Tilia.* I was extremely glad to read the very interesting account of our native species of *Tilia*, communicated by Mr. Leighton in the words of Mr. Jorden, with further remarks by the former gentleman, (*Phytol.* 147); and they have, I think, like able counsel, made out a plain case in favour of their clients' claim to the rights of citizenship. Till I saw Mr. Jorden's account in your pages, I was disposed to believe the small-leaved lime (*Tilia parvifolia*) the only species really indigenous to this country, never having met with the broad-leaved ones in any situation where they had a perfectly wild appearance; but the distribution of the three species on the continent of Europe, in conjunction with the decided testimony of Mr. Jorden to their spontaneous growth in Worcestershire &c., has almost entirely, if not absolutely, removed my previous scepticism. I must however premise, that from some varieties I have observed in these trees, I am not without suspicions that *Tilia parvifolia* and *grandifolia* are the two extremities of a series, of which *T. europæa* is a middle link; but to substantiate this view of the subject would require much stronger evidence than I am able to bring forward at this moment. The genus *Tilia* seems to have its metropolis in the cooler portion of the temperate zone, a few species extending into the warmer parts only, where the increase of temperature is modified by humidity of soil or elevation. *Tilia parvifolia* is the most northern form or species, and the only one found native in Norway, Sweden, and the northern provinces of the Russian empire, ranging in Scandinavia to 63° 30', and in Russia to at least 60°, being frequent in woods about St. Petersburg. The broad-leaved species, *T. europæa* and *grandifolia*, predominate in the vast forests that cover the extensive plains of central and eastern Europe between 55° and 50°, in Poland, Lithuania, and the more southern governments of Russia, where Pallas tells us ('*Flora Rossica*') the small-leaved lime (*T. parvifolia*) is rarely met with. The famous honey of Konow in Lithuania is gathered by the bees from the blossoms of a broad-leaved lime, which is there said to constitute entire forests, and is doubtless the same species as that of the bark of which the Russian bast or matting is manufactured. Proceeding farther south, we find in

France, Switzerland, and the North of Italy, the three forms or species of the lime-tree affecting elevated or even mountainous situations, rarely descending into the plains unless favoured by concomitant humidity and consequent diminution of temperature. In these parts the small-leaved lime is almost supplanted by those of more ample foliage. From the consideration of their geographical distribution from north to south, there seems no reason why all these three species or varieties of the lime should not occur wild in Britain, but local causes may combine to give predominance to one or other of them in particular. Thus the general low average of our summer temperature, resulting from the combined moisture and cloudiness of the atmosphere, even in the South of England, may and indeed does dispose to the production of northern species or varieties under parallels of latitude which, in countries where the sun's influence is less impaired by absorption of his rays in passing through a misty medium, or the actual interception both of heat and light by dense masses of vapour, would rather favour the development of southern forms of vegetation. We are geographically nearer the wine region of Europe than to any part of the Scandinavian peninsula along our southern coast, yet does the character of our vegetation partake more of a northern type than would be inferred from the consideration of latitude alone. I believe also our entomological productions approximate more to those of Sweden and Denmark than to the same tribes in France or Germany. In accordance with these facts we might expect that of all the three species of *Tilia* native to Britain, the small-leaved lime (*T. parvifolia*) would predominate with us, as being the more frequent one towards the north, and such appears to be the case. I can vouch to having seen *T. parvifolia* truly wild and abundant between Halstead and Sndbury, in various places along the road in hedge-rows and copses, and I found a wood between Bury and the village of Whepstead, about six miles distant, quite full of this species, but kept down by periodical lopping to the dimensions of a shrub. Mr. Abraham of Exeter told me that there were woods of *T. parvifolia* about Buckleigh in Devonshire, which Mr. H. C. Watson seems to think adverse to the idea of its being indigenous there, a conclusion the very reverse of that I should arrive at, since this species is by far the least ornamental of all our limes, and of little or no value as timber, nor have I ever heard of its being planted to any extent for copsewood. The very large wood of *T. parvifolia* near Shrawley in Worcestershire, mentioned by Mr. Lees, is another instance in point, were farther proof wanting to substantiate the claim of this species at least to rank as native with us, which was the opinion moreover of the cautious and scrutinizing Ray, as also of Evelyn. I would suggest whether Lyndhurst in the New Forest, may not be derived from a wood (hurst) of limes (linden) now no longer existing, as I find both *T. parvifolia* and *europæa* in old hedgerows about Lymington occasionally, which is not very distant from the former place, but I dare not venture to pronounce either certainly indigenous there. Evelyn seems to hint at the existence of *Tilia europæa* as a native tree, when he speaks of our wild limes as having "a somewhat smaller leaf" than the cultivated, and as apt to be *civilized*! that is, improved or made larger by transplanting. Gerarde, too, if I remember right (for he is not now at my elbow to ask the question of), refers to this or *T. grandifolia* as growing in the woods of Northamptonshire, under the then common denomination of *Tilia fœmina*, and Stokenchurch woods in Oxfordshire were till lately said to have produced both the broad-leaved species. Again, Mr. Ward, of Richmond, in Watson's 'New Botanist's Guide,' finds *T. grandifolia* truly wild on Clink Bank, near that town; and my excellent friend Mr. Borrer has observed a lime growing abundantly in a hill-side copse in Sussex, the sta-

tion for which, an apparently truly wild one, he pointed out to me in an excursion we made to Beachy Head, in the autumn of 1840. From the periodical cutting of the brushwood not permitting the trees to acquire a flowering size, Mr. Borrer cannot with certainty refer them to their species, I understand however that they belong to the kinds with broad foliage. Other stations for *Tilia europæa* and *grandifolia* are given both in England and Scotland, as at Boxhill, Streatham, Blair Athol and near Edinburgh, but from what has been just said of the distribution of the broad-leaved limes, it is not probable that they are indigenous to the latter country. In Ireland *T. parvifolia* is the only really *indigenous* species recorded by Mr. Mackay ('Flora Hibernica') on the authority of Templeton, and this is what we might expect from the nature of the climate of that island. Mr. Leighton's observations on the differences between our three limes (now I trust fully established as aboriginal in Britain), are made with his accustomed accuracy. *Tilia parvifolia* in particular is, as generally seen, an extremely well marked species, from its smaller, more numerous and much later flowers, and their weak leathery capsules, besides the other striking features so ably pointed out by Mr. Leighton; yet varieties do present themselves with most puzzling and aspiring tendencies to emulate the umbrageous honours of their more "civilized" fellow species.—*Id.*

119. *Additional Facts on Monotropa Hypopitys.* Mr. Wilson, I see (Phytol. 149), objects to my view of the parasitic growth of *Monotropa*; and the difficulty of the subject is shown, when even with the aid of the microscope so acute an investigator could not arrive at positive certainty, even with respect to the "woolly substance" investing its roots. This hairy envelope, I still think, is part of the economy of the plant, having found it present in every specimen, and appearing to my observation to be wound about the *young tubers* of the *Monotropa* and the rootlets of the beech, at their junction with each other. No doubt it may be detached from the clustered fleshy radicles of the *flowering plants*, and from the shrinking of the beech-roots the connexion, with the nicest observation, appears dubious. Had Mr. Wilson, however, the harsh oolitic soil of the Cotswolds to deal with, as I had, instead of the sand of Lancashire, and seen me working at my task for a week, he would scarcely have imputed to me a want of care, in so far as I had conducted the investigation. Anxious only to elicit truth, I have stated what appeared to my observation with ordinary appliances, being desirous, if possible, to render the matter clear to general observation; nor does it follow that due care was not employed because I had no facilities for microscopic dissection close at hand. A powerful double lens, my pocket companion for years, certainly *lithurizes* my sight to some extent, and as far as it goes may be depended upon. It appeared to me, then, that the fleshy clustered radicles of the *Monotropa*, about which there can be no doubt, had ultimate fibres, spongioles or suckers, *connecting them with the rootlets of the beech*. But as I have stated throughout, young tubers must be examined for this, the "woolly substance" about the old plants, whatever it is, being too inextricably entangled to allow us to arrive at any certainty as to the nature of its connexion. I shall here, however, just state an *additional fact*, confirmatory of my views, and I invite other botanists to examine the subject, with a perfect freedom from prejudice. Wishing to see if the young plants I had obtained from among the beech-roots could be kept alive, I immersed two in a tumbler of water, where they remained about a month, when, as they made no progress, I took them out for preservation, and placed them in the sun to dry on a piece of white paper. To my great surprise I found them, some days after, *affixed to the paper as if glued thereon*,

nor could they be shaken off; while a lens, on examination, *plainly showed* very minute hair-like fibres or suckers proceeding from the fleshy tubers of the young *Monotropa*, and *binding it down to the paper*. Unfortunately, one of these fixed plants (which thus appear at least *curiously to have simulated a parasitical growth*) was trodden upon through an accidental fall of the paper, but the other remains affixed as at first; and I hope to induce some friend, more skilful at microscopical dissection than I profess to be, to examine it. What I find remarkable, and I write from careful reiterated observation on specimens collected by myself, is the diversity in the size of the clustered roots, from old ones possessing numerous rudimentary stems, to small tuberous knobs where the buds are scarcely discernable with the naked eye. In these last, more especially, I find the fleshy tubers closely applied to and even twisted round the beech-roots, so that I cannot separate them without violence, even after having possessed them above four months. In a specimen now before me, after immersion in water, a beech-root just at its entrance among the clustered radicles of the *Monotropa*, is obviously thickened, and covered by them in an imbricated manner, just as if melted glue had been laid on with a brush. The subject is of course, as I have myself intimated, open to further elucidation, and I have only had the opportunity of the inspection, carefully made, however, which I have already recorded, (*Phytol.* 98). Yet though opinions may differ as to the real nature of the attachment of *Monotropa* to the roots among which it is found nestled, I should think that botanist rash who, in the present state of the enquiry, and without having watched the plant from its first germination, should absolutely affirm that it is *not* parasitical. I may here state that all my mature flowering specimens of *Monotropa*, as well as the young plants, are perfectly *erect*, and in only one instance can I perceive the *slightest* indication of a bend at the summit of the stem. As Mr. Wilson is at issue with me as to the *scent* given out by the plant, and "counts noses" against me, it is but fair to hear *my* evidence as to the odorous influence exercised by *Monotropa* upon the olfactory nerves in Worcestershire. Without mentioning my own impression, I presented three mature plants in seed, which were gathered in September last, to a lady, and requested her this morning to smell them. She had no sooner done so than she instantly exclaimed—"Beautiful! just like the *Mezerion*!" This, be it remembered, is after the lapse of nearly five months; but when I had about fifty fresh plants together, the fragrance proceeding from them was so powerful as to scent the room they were in for weeks, and was instantly perceptible on opening the door. As I have stated, the impression of the fragrance on *my* senses assimilated to that of primroses, although of course much more powerful; assuredly "a raw potato" is the last and lowest simile that would have occurred to me as a comparison of its odour.—*Edwin Lees; Malvern Wells, February 8, 1842.*

120. *List of Algæ from Guernsey.* We know so very little of the marine Botany of the Channel Islands, that I am induced to send you the following very imperfect list of Algæ for insertion in 'The Phytologist.' The collection from which I prepared it, was made in Guernsey last summer, by Mr. D. Ross of Lasswade, who, not being an algologist, merely took such species as came in his way. This will account for the absence from the list of various common plants, as well as of a large number of species which have such a general resemblance to each other as to cause them to be passed over by individuals unacquainted with their forms.—*R. K. Greville; Edinburgh, February 10, 1842.*

<i>Fucoideæ.</i>	<i>Florideæ.</i>	<i>Ptilota plumosa</i>
<i>Cystoseira ericoides</i>	<i>Delesseria sanguinea</i>	<i>Ceramieæ.</i>
<i>granulata</i>	<i>sinuosa</i>	<i>Polysiphonia thuyoides</i>
<i>sceniculacea</i>	<i>alata</i>	<i>fruticulosa</i>
<i>fibrosa</i>	<i>Hypoglossum</i>	<i>spinulosa</i>
<i>Halydrys siliquosa</i>	<i>ruscifolia</i>	<i>atrorubescens</i>
<i>Fucus vesiculosus</i>	<i>Nitophyllum punctatum,</i>	<i>nigrescens</i>
<i>serratus</i>	[v. <i>ocellatum</i>	<i>fastigiata</i>
<i>canaliculatus</i>	<i>laceratum.</i>	<i>byssoides</i>
<i>Sporochnoideæ.</i>	<i>Rhodomenia laciniata</i>	<i>Dasya coccinea</i>
<i>Desmarestia ligulata</i>	<i>jubata</i>	<i>Ceramium rubrum</i>
<i>aculeata</i>	<i>palmata</i>	<i>diaphanum</i>
<i>Dichloria viridis</i>	<i>Plocamium coccineum</i>	<i>ciliatum</i>
<i>Dictyoteæ.</i>	<i>Rhodomela subfusca</i>	<i>Griffithsia equisetifolia</i>
<i>Dictyota dichotoma</i>	<i>pinastroides</i>	<i>setacea</i>
<i>Dictyosiphon sceniculaceus</i>	<i>Laurencia pinnatifida</i>	<i>Callithamnion Turneri</i>
<i>Punctaria latifolia</i>	<i>tenuissima</i>	<i>tetricum</i>
<i>Asperococcus echinatus</i>	<i>Chylocladia ovalis</i>	<i>Chatophoroideæ.</i>
<i>Ectocarpææ.</i>	<i>kaliformis</i>	<i>Myrionema strangulans</i>
<i>Cladostephus verticillatus</i>	<i>articulata</i>	<i>Confervæ.</i>
<i>spongiosus</i>	<i>Gigartina purpurascens.</i>	<i>Conferva rupestris</i>
<i>Sphacelaria scoparia</i>	<i>confervoides</i>	<i>lætevirens</i>
<i>cirrrosa</i>	<i>acicularis</i>	<i>pellucida</i>
<i>Ectocarpus tomentosus</i>	<i>plicata</i>	<i>Siphonææ.</i>
<i>Chordariææ.</i>	<i>Chondrus mamillosus</i>	<i>Codium tomentosum</i>
<i>Corynephora marina</i>	<i>crispus</i>	<i>Ulvæææ.</i>
<i>Spongiocarpææ.</i>	<i>membranifolius</i>	<i>Ulva latissima</i>
<i>Polyides rotundus</i>	<i>Brodiaxi</i> [lius	<i>Linza</i>
<i>Furcellariææ.</i>	<i>Sphærococcus coronopifo-</i>	<i>Enteromorpha compressa</i>
<i>Furcellaria fastigiata</i>	<i>Gelidium corneum</i>	

121. *True office of the Earth in relation to Plants.* Although so much has been written on the subject of gases evolved and absorbed by plants; on the form and functions of the stomata or mouths of plants; and on the obvious numerical preponderance of the stomata in the leaves and branches over those in the roots; yet the broad assertion that the office of the earth in relation to plants is precisely equivalent to its office in relation to animals — namely, to maintain them in the position best suited to their well being — has, I believe, never yet been made in print. Almost as long ago as I can recollect, this phytological fact was impressed forcibly on my mind by seeing how beautifully hyacinths blossom with their roots immersed in water and without a particle of earth that they could possibly reach. I have constantly asserted my belief on this point, but have always been laughed at as a visionary and theorist. It is, however, with infinite satisfaction that I see my views slowly gaining ground. Each succeeding year diminishes the number of those who assert that plants feed on the earth as we feed on meat and bread and potatoes: still, by far the larger portion of conversing mankind religiously believe this, and most of our farmers look on a rich soil as being as directly food for their wheat as a sack of barley-meal is food for their pigs. Now the truth is the very converse of this: the earth feeds on plants—is increased by plants — owes what is called its richness and good properties to plants. These facts are not only interesting in themselves, but the ends to which they are applicable would

furnish almost a new era in existence. It can scarcely be doubted that nature has provided, in the earth, the best possible receptacle for the roots of plants; yet even this position will admit of considerable modification, for we have first to consider whether our object in cultivation is to carry out the designs of nature, or to make nature subserve our artificial requirings; if the latter, it is quite certain that art can be advantageously applied: we have but to call to mind our commonest fruits and vegetables as examples. Thus, although plants may best achieve their destined ends when rooted in the earth, it may reasonably be doubted whether in turning their good properties to our uses a more advantageous receptacle may not be found. But without extending the enquiry so far as this, if it be once admitted that earth is in no wise the food of plants, then, *ceteris paribus*, the most unproductive sand, for instance, the heaths of Surrey, may be rendered as productive as the Golden Valley: we have only to make use of this sand, as nature intended it, for a receptacle of roots, and then having learned what is the true food of plants, to supply that food in the most profitable way. It is now generally admitted that carbonic acid gas is the food of plants; but leaving even this question to those more competent to decide on it correctly, it is quite certain that their food, whatever it may be, is evolved in greater quantities from certain chemical preparations than from the richest and most highly manured earth. Poverty of soil thus becomes a nonentity: rotation of crops a mere amusement: once admit that earth is simply a receptacle for roots, and you invest it with a property which you cannot wear out. Every common and heath may be made to produce wheat at the will of the cultivator, and the supply must ere long greatly exceed the consumption; that very description of food, the supply of which causes such difficulty to all our legislators, becoming more abundant than our most zealous philanthropists could desire.—*Edward Newman*; 65, *Ratcliff Highway*, February 12, 1842.

122. *New British Equisetum*. We have received from Francis Whitla Esq., of Belfast, a very fine *Equisetum*, hitherto unnoticed as British, the *Eq. elongatum* of Willdenow; a southern plant, indeed, but of which, as is well known to be remarkably the case with some other plants that have been supposed to be peculiar to warmer skies, the range has extended to Ireland. Mr. Whitla found it in mountain glens, near Belfast. * * Our specimens are 2½ and 3 feet long. If the roughness of the stem, its great length and ramification, and elongated teeth of the sheaths, and the apiculus of the spikes be considered, it cannot be confounded with any other of our native species.—*London Journal of Botany*, p. 42.

123. *New British Chara*. *Chara latifolia* of Willdenow. This fine species of *Chara*, which I have no hesitation in stating to be new to Britain, occurred in great abundance in Belvidere Lake, Co. Westmeath, where I collected it in August last. The great size and semipellucid appearance, at once struck me as remarkable. The main branches are striated and covered with raised rough points, as are the first joints of the whorled ramuli, while the remaining portion consists only of one pellucid tube, which is thicker than the lower joint, and ends in a sharp point. The branches of the whorls are again beset with smaller ramuli (not bractæ), in which respect it differs from all our species in the opaque division. I regret I could not find the species in fruit, neither globule nor nucule was present; though I examined hundreds of specimens in various parts of the lake, where it sometimes covered the bottom to the extent of many square perches; and what is singular enough, all the other species in the opaque division occurred abundantly in the same lake, and were all in full fruit, each preserving its respective character.—*D. Moore*; in *London Journal of Botany*, p. 43.

ART. LV.—*Proceedings of Societies.*

LINNEAN SOCIETY.

December 21, 1841.—Read: 1. Extracts from a letter to Mr. Solly from Mr. Griffiths, giving a summary of the results of observations made by him on the development of the embryo in *Santalum*, *Viscum*, *Osyris* and *Loranthus*, as well as remarks on the reproductive organs of *Isoteles*. 2. A paper by Mr. Miers, containing descriptions of new plants, viz., *Solenomeles chinensis*, previously published under the name of *Cruikshankia*, which name had been appropriated to another genus: and two species of the new monocotyledonous genus *Distrepta*.—*D. vaginata* and *oblita*. 3. A letter from Mr. Bidwell of Sydney, containing a description of a new *Araucaria*, which attains the height of 200 feet, and about 100 feet of the stem is frequently without branches: also of *Nuytsia floribunda*, in the botanic garden at Sydney, in the embryo of which three cotyledons have been discovered by the author.

January 18th, 1842.—Robert Brown, Esq., V.P. in the chair. In consequence of the decease of Aylmer Bourke Lambert Esq., V.P. one of the founders of the Society, no papers were read at this meeting.

February 1st.—The Bishop of Norwich, President, in the chair. Read, a paper on the development of the embryo in *Tropaeolum majus*, by Dr. Jerrold. The changes which take place in the ovule and embryo, from the first appearance of the former to the perfect formation of the latter, were minutely detailed.

February 15.—Robert Brown, Esq., V.P. in the chair. This being the evening appointed for the election of a person to fill the joint offices of Clerk, Librarian and Housekeeper, vacant by the lamented death of Professor Don, there was an unusually large attendance of Fellows. The chairman briefly announced the object of the meeting, stating that two candidates had offered themselves for the joint offices—Mr. Kippist and Dr. Lemann, and that balloting papers had been prepared in accordance with the laws of the Society. The Secretary having read the laws relating to the election of Librarian &c., the ballot forthwith commenced and continued until 9 o'clock, when a scrutiny of the votes was taken and the result handed to the President, who stated the numbers to be,—for Mr. Kippist, 87, for Dr. Lemann, 69; and declared Mr. Kippist duly elected.

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, December 9, 1841.—Professor Balfour, and subsequently Professor Graham, in the Chair.

Contributions to the herbarium were announced from Lady Keith Murray, and seven other members. The specimens from her ladyship were particularly admired for their beauty and fine state of preservation.

After the election of several members, the various office-bearers for the ensuing year were chosen, including Prof. Christison, President; Dr. Greville, Prof. Traill, Sir Wm. Jardine, Bart. and Professor Balfour, Vice-Presidents; Mr. Brand, W.S., Secretary and Treasurer; Mr. Joseph Dickson, Corresponding Secretary; Mr. Edward Forbes and Dr. Douglas MacLagan Foreign Secretaries.

The following communications were read.—

1. On the Groups *Triandrae* & *Fragiles* of the genus *Salix*. By the Rev. J. E. Leefe, Audley End, Essex. "Whoever would study the willows with success, must see them growing at different seasons of the year; for fragments gathered at one season only, serve but to perplex and confuse the botanist. Another source of confusion is the practice of collecting specimens, without numbering *them* and the *tree*, trusting subsequently for identification to the memory alone, whereby a most unpleasant feeling of uncertainty is produced. The changes in the form of the leaves, and in the relative proportion of some of the parts of fructification at different periods of growth, are often so surprising, that without a mark of recognition, I should frequently have doubted whether my specimens had been all collected from the same tree. Again, it is a common practice to select for preservation the largest and most vigorous-looking specimens, in consequence of which an erroneous idea of the average character is very apt to be produced. If an unusually luxuriant specimen be chosen, it should have a corresponding label." The author proposes the cultivation of the more intricate species of the genus in gardens, in order that their variations may be regularly observed: and in continuation recommends the adoption of a practice followed by himself:—"I should advise that the specimens of every *Salix* in a herbarium (excepting, of course, species about which there can be no mistake), should be such as to present one or more regular series illustrative of the progressive development of the catkins, each set being taken from the same tree at intervals during the flowering season,—and that at least two specimens of the leaves, gathered at different periods, should be preserved, so as to show the form of the stipules, and the progressive alteration in the foliage;—also, that thin sections of a catkin of each species, perpendicular to the axis, should be gummed down, by which means the form of the ovarium and any other particular respecting it—the length and pubescence of its stalk, the nectary, the character of the axis, and the number of ovaria in a given length of the spiral, could easily be seen without mutilating the other specimens. The exact date also of each specimen should be registered, whereby many ambiguities would be removed. For instance, it is common to find characters derived from the relative proportion borne by the nectary to the ovarium; but this varies greatly, as a dated series of specimens would immediately make evident,—sometimes, as in the *viminalis* group, from $\frac{1}{4}$ to $\frac{3}{4}$. Good specific characters frequently disappear in the drying process,—for instance, the furrowed shoots of *S. amygdalina*, which afford an excellent mark of distinction from *S. Hoffmanniana* in fresh specimens, cannot be relied upon when the specimens are dry, owing to the shrinking of the bark." After some remarks on the willows as occurring at Audley End, the author gives a description of each species in the above groups.

2. On three newly proposed species of British *Jungermannia*. By Dr. Taylor, Dunkerron. Communicated by Mr. William Gourlie, jun.

3. Remarks on the Flora of Shetland, with a full catalogue of plants observed in these Islands. By Mr. Thomas Edmonston, jun. The author observed that the Botany of Shetland had never been adequately investigated. Dr. Neill, who spent ten days or a fortnight there in 1804, was the first to enter upon this field, and he was followed by Dr. Gilbert M'Nab, who spent a few weeks there in 1837. Mr. Edmonston (a native of Shetland) has devoted the last four years to this agreeable pursuit, and in that time has visited the whole district. Two years ago, he transmitted to London a list of the plants which had then been observed by him, and this list, though incomplete, and, in some instances, inaccurate, made its appearance lately in the 'Annals of Natural History,' without any previous intimation, so that he had no opportunity of correcting it. The Orkney Islands, which are numerous, stretch about 70 miles from S.E. to N.W. Their geological formation is altogether primitive; the most abundant rocks being gneiss, granite and limestone, which are very generally covered by large tracts of peat moss, and often destitute of all vegetation excepting the commonest bog plants. Unst is the most northerly island, and is also the most diversified in its formation; gneiss, mica slate, chlorite slate and serpentine being all found on it. Its vegetation is equally varied, some of the species being peculiar to it in Britain, and others being rare elsewhere. The most interesting of these, viz., *Arenaria norvegica* and *Lathyrus maritimus*, were discovered by Mr. Edmonston when he was little more than twelve years of age. Rona Hill, which attains an elevation of about 1500 feet, is the highest land in Shetland, and it is only upon it that the botanist meets with anything like alpine vegetation. The largest island, usually called the Mainland, presents little of interest, but is, for the most part, a succession of dreary peat moors, occasionally enlivened by *Scilla verna* and *Pinguicula vulgaris*; nor are the other islands generally more productive, though sometimes a fertile spot occurs. "The general character of Shetland vegetation," says Mr. Edmonston, "seems to be subalpine, or nearly so, for we find plants belonging properly to that region, in every situation, such as *Thalictrum alpinum*, *Draba incana*, &c., which grow down almost to the sea level." The list of species which accompanied this paper, comprehends 396, viz., 286 phanerogamic and 109 cryptogamic,—the latter consisting of 22 ferns, 65 mosses and 22 hepatics.

4. Account of a Botanical Excursion in Norway. By Dr. John Shaw. The circumstance that most struck Dr. Shaw in this tour, is the almost total absence of *Calluna vulgaris*, which covers our Scottish moors, but which in Norway is so far from being common, that throughout an extent of 600 miles, he "could scarcely find a specimen of it." He also remarks on the extreme wildness and sterility of some tracts, as contrasted with the fertility and luxuriance of vegetation in others. The species which he observed were in general the same as those which grow in Scotland,—those not indigenous here being in about the proportion of 1 to 5; but several plants which are extremely rare in this country, such as *Menziesia cerulea*, *Pyrola uniflora* and *Linnæa borealis*, he found abundant in many places. He was also particularly gratified by the beauty and luxuriance of *Trollius europæus*, of which he observed "myriads, with their corollas like half pounds of butter, gracefully waving their heads, almost in the frozen region."—Condensed from the Report in 'The Edinburgh Evening Post and Scottish Standard,' of December 15, 1841.

BOTANICAL SOCIETY OF LONDON.

February 4th, 1842.—Dr. Willshire in the chair. Specimens of the following plants were presented:—*Chara latifolia*, Willd. found at Belvidere Lake, Westmeath, in August, 1841, by Mr. D. Moore, of the Dublin Glasnevin Garden; *Equisetum elongatum*, Willd. from Collin Glen, near Belfast; both presented by Mr. D. Moore.* *Acidium Thesii*, Leefe, collected at Hilderham, near Linton, Cambridgeshire, by The Rev. J. E. Leefe, and presented by him. *Cistopteris alpina*, Link. collected at Low Layton, Essex, and presented by Mr. E. H. Button. British plants from Mr. J. Riley, Mr. S. King, Miss Roods and Mr. Mitchell; foreign ferns from Mr. J. Riley; British fungi from Mr. H. O. Stephens; and a collection of British woods from Mr. T. Twining, jun.

A paper was read by Mr. Adam Gerard, "On the Botany of Kotgurk" in the Himalaya, taken from the notes of Captain Patrick Gerard, of the Bengal Native Infantry. Kotgurk is surrounded on three sides by thick woods, in which the Rhododendron flourishes; they and the neighbourhood abound in pines, oaks and almost every tree, shrub and plant, indigenous to Europe, besides many others unknown. Amongst the latter is a species of small red bamboo, which grows all over the higher mountains, attains the height of 8—12 feet, and is used for a variety of domestic purposes. The following were mentioned as the chief vegetable productions:—Rice, several kinds, mostly of the coarser sort; Jow, or barley; Oowa jow, (*Hordeum celeste*); Kunuk, or wheat; Phuphura or phuphur, (*Panicum tataricum*); Chuberee, or Jaburee, the grain of which differs little in appearance from that of the Phuphur and Oogul; opium in considerable quantities for export; three species of Bathoo (*Amaranthus Anardhana*); various kinds of pulse; a small quantity of cotton and ginger on the banks of the Suthy and other rivers; Indian corn, limited. The Jow ripens earliest; the Oowa jow and Kunuk fully a month later. In elevated situations in the neighbourhood the crops are often very backward, the wheat especially, which is frequently not housed until the rainy season has set in, and is sometimes reaped in a green state. The climate and other peculiarities were fully described.—G. E. D.

* See page 173.

THE PHYTOLOGIST.

No. XI.

APRIL, MDCCCXLII.

PRICE 6D.

ART. LVI. — *On British Species and Varieties of the Genus Sagina.*
By SAMUEL GIBSON, Esq.

Hebden Bridge, February 10, 1842.

SIR,

The following descriptive list is drawn up from specimens of *Sagina* in my own herbarium: I have thus endeavoured to furnish a few materials towards the history of this difficult genus. Probably some of the forms may hereafter be considered distinct species; but not presuming to decide on that point, I leave it to the better judgment of others. If you should consider the list worthy a place in the 'Phytologist,' it is at your service.

SAML. GIBSON.

To the Editor of 'The Phytologist.'

Genus. — *SAGINA*, *Linnaeus*.

Capsule 1-celled, 4-valved, many-seeded: petals 4, (shorter than the calyx or entirely wanting): stamens 4: styles 4: sepals 4.

1. *S. apetala*, Linn. Plant annual, glaucous, reclining but not taking root. Stems rough with scattered points: leaves, each tipped with a very distinct awn or bristle, slightly combined by their membranaceous bases, linear, about a quarter of an inch long, fringed at the edges with jointed hairs: flower-stalks erect, smooth, about an inch long: calyx ovate, obtuse, about one third shorter than the capsule; segments with narrow membranaceous margins: petals entirely wanting: seeds nearly smooth, variable in shape, with their edges crenate.

On moist, barren, sandy ground. Common in many parts of Lancashire. I gathered this plant in 1840, on the Bolton road, about two miles from Manchester; and have specimens of it from Marple, &c.

β. stricta, mihi. Plant quite upright: stems and leaves ciliated with jointed hairs: flower-stalks set with *stalked glands*: seeds smooth, with their edges dentate.

This variety differs from the above in being always upright, and having glandular flower-stalks. On the muddy banks of the river Mersey, opposite Liverpool, in June, 1831. I gathered this plant in Wallasey Pool, in June, 1841.

γ. divaricata, mihi. Plant upright in a young state, decumbent with age: seeds rough, keeled at the back, keel crenate.

This variety is prominently distinguished, not only by its divaricated mode of growth, but by the great dissimilarity of its seeds. It appears to be somewhat rare, as I have specimens from one locality only, namely, the garden walks of P. M. James, Esq., Sumerille Irlams, on the heights near Manchester, communicated to me by Mr. W. Charlton.

δ. prostrata, mihi. Plant with numerous stems, all spread quite flat on the ground, dark green, hairy: leaves short (about one eighth of an inch long), hairy: flower-stalks and calyces quite smooth: seeds as in *α*.

The prostrate habit of this plant at once distinguishes it from every other form of *Sagina apetala*. On the walks of neglected gardens in Halifax &c.; apparently not very uncommon, as I have a specimen from Cornwall, and have also seen others from Richmond, in Yorkshire.

ε. setacea, mihi. Plant upright, *very slender*, from two to five inches high: stems few, smooth, leaves about one quarter of an inch long, narrow, membranaceous at the base, their edges ciliated, each tipped with a very short bristle: seeds smooth, dentate on their back.

The very slender and upright habit of this at once distinguishes it from every other form of the plant. Apparently not very common: my specimens are from Richmond in Yorkshire.

ζ. glabra. (*Sagina apetala*, *β. glabra*, Babington, 'Primitiæ Floræ Sarnicæ,' p. 15). Plant nearly upright: stems and leaves smooth, the latter tipped with a very distinct bristle: flower-stalks and calyces set with minute stalked glands, the two outer sepals mucronate.

For specimens of this variety I am indebted to Mr. Babington; they are from Jersey.

η. lævis, mihi. (*Sagina maritima* of the Manchester Flora, p. 14). Plant nearly upright, smooth in every part

Closely allied to the foregoing, but differing in the flower-stalks and calyces being destitute of the stalked glands so conspicuous in that variety. This appears to be the most common form of *Sagina apetala*. Perhaps this and the last might be considered two forms of one distinct species: the two outer sepals of the calyx being mucronate, together with the absence of hairs from the leaves &c., would serve to distinguish them from every other form of *Sagina apetala*. My specimens are from the walls of Bowden Church-yard, given to me by the author of 'Flora Mancuniensis;' also from Brandon Hill, &c. by Mr. Grindon; and Greenwich Park, Mr. Luxford. In 1835 I gathered it at Selby, and in 1836 on the magnesian limestone at Garforth, six miles from Leeds.

2. *S. maritima*, Don. Plant annual, smooth. Stems prostrate, divaricated: leaves short, broad in proportion, thick and blunt, combined by their membranous bases: flower-stalks slender: segments

of the calyx broad, ovate, obtuse, with narrow membranous edges : petals none : capsule shorter than the calyx.

All my Scottish specimens answer to the above description.

β. erecta, mihi. Plant upright, smooth, very slender : leaves narrow, long in proportion, tipped with a very short bristle : capsule longer than the calyx.

The more slender and upright habit of this variety, combined with its longer capsule, will serve to distinguish it from the above. My specimens of this plant I gathered in Wallasey Pool, Cheshire, in June, 1841, where I found all our three species of *Sagina* growing together. My Warrington specimens differ but little from this. I have also a specimen of the *Sagina maritima* from Devonport, communicated to me by Mr. Luxford, that exactly agrees with my Warrington plants.

3. *S. procumbens*, Linn. Perennial. Stems one to ten inches or more in length, spreading on the ground and taking root at their joints, leafy : leaves evergreen, combined at their base by a thin membrane, ribbed, linear, about one to three quarters of an inch in length, very smooth, often tipped with a minute bristle : flower-stalks short, smooth, often drooping : calyx-leaves broad, ovate, obtuse, with very narrow membranous edges : petals (if present) ovate, obtuse, about half the length of the calyx.

This species grows in damp shady places everywhere. Smith tells us that the leaves of *Sagina procumbens* are three-ribbed ; this character I have not been able to find in any of the forms of the plant : nor have I ever been able to find the seeds of any species of *Sagina* bordered with a black ring.

β. pentandra, mihi.

This differs from the above only in having a fifth part added to the whole fructification. Rare : my specimens I found at Dob-royd near Todmorden, in July, 1840.

γ. nodosa, mihi. Stems procumbent, densely crowded, strong and woody, bearing at their joints moss-like tufts of leaves, which are about half an inch in length, each tuft bearing a solitary flower-stalk.

This singular-looking variety I found in the town of Malton, September, 1838.

δ. maritima, mihi. Root branched at the crown : stems few, very short, prostrate, disposed in a circular form.

The very small size of this variety, combined with its circular mode of growth, will at once distinguish it from the common state of the plant : probably the maritime locality of this little variety will account for the difference. Found at Crosby, near Liverpool, in June, 1841.

ε. spinosa, mihi. (*Sagina procumbens*, var. *β. spinosa*, Baines's 'Flora of Yorkshire'.)

This differs from the normal state of *Sagina procumbens* in the edges of the leaves being margined with minute diaphanous spines. Found at Halifax, Shibden, near Leeds, Hebden Bridge, &c. &c.

ART. LVII. — *A List of Plants met with in the neighbourhood of Swansea, Glamorganshire.* By J. W. G. GUTCH, Esq.

(Concluded from p. 145).

Aren. maculatum. Common.

Acorus Calamus. Near Britton Ferry, (Mr. Player).

Typha latifolia and *angustifolia.* Cromlyn Bog, in abundance and great luxuriance.

Sparganium ramosum and *simplex.* Near Singleton and Neath.

———— *natans.* Cromlyn Bog and Singleton Marsh, in the old Red-jacket Canal.

Potamogeton pusillus and *crispus.* Neath Canal.

———— *heterophyllus* and *natans.* Cromlyn Bog.

Ruppia maritima. In the Neath Canal.

Triglochin maritimum and *palustre.* Cromlyn Bog and Loughor Marsh.

Alisma Plantago. Ditches and marsh near Singleton.

———— *natans.* Cromlyn Bog and near Singleton.

———— *ranunculoides.* Sketty Bog; ditches near Singleton; Cromlyn Bog. Formerly plentiful on the boggy parts of Sketty Burrows, which are now enclosed; and found by Mr. Moggridge in Tennant's Canal, near Coed-y-allt, (Dillwyn).

Iris Pseudacorus. Common on all the marshy ground near Swansea, Mumbles road and Cromlyn Bog.

— *foetidissima.* At Gelly Evan, near Penllergare, where the Spanish *Iris xiphioides* has continued to flourish with it for more than thirty years at least. *Iris foetidissima* also grows in Gower, (Dillwyn).

Spiranthes autumnalis. On the Town Hill and Mumbles.

Neottia Nidus-avis. In a small wood near Pontardawe, (Dillwyn); and in woods about Pont nedd Vech, Ystradgunlais and Penrice.

Ophrys apifera. On the lawn and in the wood of Penrice Castle, (Dillwyn).

Asparagus officinalis. Near Loughor, and also on Worms Head and the coast near Meadows between Cowbridge and the sea, about Cardiff, and at Singleton. In Martyn's edition of Miller's 'Gardener's Dictionary' it is denied that the "sparrow-grass" of our gardens is the same species; and it would be interesting to ascertain whether the young shoots of the wild plant possess the same flavour, and the effect of removing them to a richer soil.

Allium vineale. Common near Port Tennant.

Scilla verna. On the lime-stone hill between the Mumbles and the light-house; on the Worms Head and other places in Gower, plentifully.

Paris quadrifolia. In the woods about Britton Ferry and near Kilvay Bridge, in Nicholston wood and other woods in Gower. It not unfrequently occurs with five leaves; and the Rev. G. E. Smith, in his Catalogue of the Phænogamous Plants of South Kent, says that the flower then frequently follows the quinary division, presenting five sepals, five petals, ten stamens, five styles and a five-celled capsule. About Devon I have frequently found the plant with six, and sometimes with seven leaves, and have never observed any variation from the usual quaternary arrangement of the flowers, (Dillwyn).

Tamus communis. Near Singleton.

Butomus umbellatus. Cromlyn Bog and Neath Canal.

Juncus acutus. Neath Canal, and sand hills of Cromlyn Bog and Newton Nottage.

- Juncus conglomeratus*. Near Kilvey Hill.
 — *bufonius*. Near Neath Canal.
 — *lampocarpus*. Near Cwmbola Colliery.
 — *glaucus*, *effusus*, *compressus* and *uliginosus*.
Narthecium ossifragum. Near Cwmbola, in the boggy ground and on the Town Hill.
Rhynchospora alba. Singleton.
Eleocharis palustris and *multicaulis*. Neath Canal and Singleton.
 — *acicularis*. Town Hill, Port Tennant, Sketty and near Fenoni.
Cladium Mariscus. In great luxuriance on Cromlyn Bog.
Isolepis setacea and *Savii*.
Scirpus lacustris. Near Uplands, on the road from Fenoni.
 — *cæspitosus*. Town Hill.
Eriophorum angustifolium. Cromlyn Bog. Common on turf soil on the mountains, (Dillwyn).
Carex dioica. Cromlyn and Sketty Bogs, and boggy places about the waterfall at Aberdylais, (Dillwyn).
 — *stellulata*. Singleton Marsh.
 — *curta*. Cromlyn and Sketty Bogs.
 — *arenaria* and *vulpina*. Mumbles Road.
 — *pendula*. About the waterfall at Glynhir, near Llandeby, (Dillwyn).
 — *strigosa* and *limosa*. Cromlyn and Sketty Bogs.
 — *recurva*. Singleton Marsh.
 — *siparis*. Cromlyn Bog.
 — *ampullacea*. Cromlyn and Sketty Bogs, and boggy places about the waterfall at Aberdylais, (Dillwyn).
Ophiurus incurvatus. Near Port Tennant.
Lolium perenne. Kilvey Hill and Port Tennant.
Nardus stricta. Sea-side and marsh near Loughor.
Hordeum murinum. Common.
 — *pratense*. Near Port Tennant.
 — *maritimum*. Not uncommon on the sea-shore, (Dillwyn).
Brachypodium sylvaticum. Between Swansea and Port Tennant.
Triticum repens. Mumbles road.
Alopecurus bulbosus. Found in Cardiff Marshes and about the Aust passage, but some specimens that have been gathered in this neighbourhood, and have been mistaken for it, are nothing more than varieties of *Alopecurus geniculatus*. *A. bulbosus* appears to have been chiefly founded by Linnæus on the *Gramen myosuroides nodosum* of Ray, Syn. t. 20, fig. 2, which may possibly be different; and as there is no specimen in the Linnæan herbarium, it can only, at most, be regarded as a very doubtful species, (Dillwyn).
 — *geniculatus*. Common near Port Tennant.
Phalaris arundinacea. Near Singleton.
 — *canariensis*. On a dung-hill by the new road to the Infirmary.
Phleum pratense. Near Singleton.
 — *arenarium*. Mumbles road.
Ammophila arundinacea. Banks at Cromlyn and Singleton.
Agrostis vulgaris. In a field near Kilvey Hill and Port Tennant.
 — *alba*, and var. *β. stolonifera*. Near Port Tennant and St. Helen's.

- Agrostis Spica-venti* ? In a field near Kilvey Hill.
Arundo epigejos. Between the Ferry and Port Tennant.
 ——— *lanceolatus*. Common.
Arrhenatherum avenaceum. Between the Ferry and Port Tennant, common; Mumbles Road.
Holcus lanatus. Near Port Tennant.
 ——— *mollis*. Neath Canal.
Cynosurus cristatus. In fields near Singleton and Mumbles road.
Aira præcox. On Kilvey Hill.
 ——— *cæspitosa*. Common.
Trisetum flavescens. Near Port Tennant.
Phragmites vulgaris. Near Port Tennant and Dannygraig.
Dactylis glomerata. Near Port Tennant. This grass everywhere best resists the copper-smoke.
Bromus asper. Common.
 ——— *diandrus*. Town Hill.
Festuca vivipara. On Cefn Bryn; and it appears to me to be nothing more than a variety of *Festuca ovina*, (Dillwyn).
 ——— *duriuscula*. Near Singleton and about Port Tennant.
 ——— *gigantea*. Common.
 ——— *bromoides*. On the sand hills and road-side.
 ——— *loliacea*. In moist pastures about Pont Nedd Vechn, on the skirt of the wood near the four-mile stone by the side of the Gower road from Swansea, and several other places, (Dillwyn).
Glyceria aquatica. Cromlyn Bog and banks of Neath Canal.
 ——— *fluitans*.
Sclerochloa loliacea. Between the Infirmary and the sea-shore at Singleton, and at Penrice, where it was found by Dr. Turton.
 ——— *rigida*.
 ——— *distans*, (retroflexa, Curt.) Llandwr Marsh.
Poa trivialis, *pratensis* and *annua*.
Scolopendrium vulgare. On old walls and the fissures of wells, not uncommon.
Ceterach officinarum. Near Park, Gower Inn, &c., not common.
Polypodium vulgare. Cromlyn Bog.
 ——— var. *γ. cambricum*. On rocks in the Neath Valley. I have occasionally met with a barren frond more or less lacinated, (Dillwyn).
 ——— *Phegopteris*. About Uscoed Eynon Garn, Uscoed Hendry and the Ladies' Fall, near Pont Nedd Vechn, and about the waterfall at Glynhir, near Landebie, (Dillwyn).
 ——— *Dryopteris*. On rocks in the deep glens about Pont Nedd Vechn, (Dill.)
Polystichum Lonchitis. Cilhepste Falls, (Mr. Player).
 ——— *lobatum*. Not uncommon on shady hedge-banks.
Lastrea Oreopteris. Plentiful in hedges on Town Hill.
 ——— *Thelypteris*. Cwmbola, Sketty bogs and marshy ground in the neighbourhood
 ——— *Filix-mas*. Everywhere.
 ——— *spinulosa*, var. *β. dilatata*. Cwmbola.
Cystopteris fragilis, var. *γ. dentata*. Kilvey Hill.
Asplenium Trichomanes. Common near Britton Ferry and Gower Inn.

- Asplenium viride*. In crevices of the rocks at the upper Cilhepste waterfall, near Pont Nedd Vechn, and at Darran yr Ogof, near Ystradgunlais, (Dillwyn).
- *marinum*. On rocks and walls near Oystermouth, and along the coast of Gower, common, (Dillwyn). Very plentiful in Bacon's Hole.
- *Ruta-muraria*. Common on walls near Swansea.
- *lanceolatum*. Town Hill, near Swansea.
- *Adiantum-nigrum*. Park and Pennard.
- Athyrium Filix-femina*. Town Hill.
- Pteris aquilina*. Town Hill.
- Lomaria spicant*. Common in the hedges.
- Adiantum Capillus-Veneris*. Common on the cliffs of lias at the eastern end of the county. I have never seen it on mountain limestone, or nearer to Swansea than Dunraven, (Dillwyn).
- Osmunda regalis*. Common and in great luxuriance in ditches by the road-side and other moist places. In the summer of 1839 I found, near Cwmbola, the root of one plant measuring at least between four and five feet in circumference.
- Botrychium Lunaria*. On the lawn in front of Penrice Castle, and occasionally found in Nicholston Wood, and other woods in the neighbourhood, (Dillwyn).
- Pilularia globulifera*. About the borders of Llynfach, on the mountain eastward above Aberpergwm, (Dillwyn).
- Equisetum fluviatile*. Cromlyn Bog and other bogs in the neighbourhood.
- *arvense* and *palustre*. Near Singleton.
- *sylvaticum*. Near Cwmbola; Drymma wood, between Neath and Swansea.
- *limosum*. Banks of Neath Canal.
- *hyemale*. Penllergare and Cromlyn Bog, where Mr. Moggridge states it to be abundant.
- Andrea alpina*. About Llyn Vach, near Aberpergwm.
- Dyophyscium foliosum*. Plentiful on rocks at the waterfalls about Pont nedd Fiske, and at a small fall on Bryn Cois; near Cadoxton, (Dillwyn).
- Tetraphis pellucida*. On a decaying tree near Pont Nedd Vechn; and it has been found by Mr. Woods, with *Funaria Muhlenbergii*, about the ruins of Caerphilly Castle, (Dillwyn).
- Weissia verticillata*. Found by Mr. Woods on the rocks about Barry Island, and I suspect that a species which has been gathered from the rocks in Gower, is the same. I believe *Grimmia maritima* has also been found in this neighbourhood.
- Trichostomum polyphyllum*. On rocks about Pont Nedd Vechn, and several other places, (Dillwyn).
- Dicranum cerviculatum*. On dry turfy banks in several places, and is probably common, (Dillwyn).
- *heteromallum*. Town Hill.
- Tortula unguiculata* var. *humilis*. On a hedge-bank near St. Helen's, and appears to me to be different from *T. unguiculata*, (Mr. Ralfs).
- Polytrichum commune* and *urnigerum*. Plentiful about the waterfalls in the neighbourhood of Pont Nedd Vechn, (Dillwyn).
- Bryum ventricosum*. About Uscoed Hendry, near Ystradgunlais, and the waterfalls about Pont Nedd Vechn.
- *ligulatum*. Britton Ferry.
- Bartramia pomiformis* var. *crispa*. On hedge-banks near Penllergare, (Dillwyn).

- Bartramia tillyphylla*. On rocks above Uscoed Hendry, near Ystradgunlais and Pont Nedd Vechn, (Dillwyn).
- Pterogonium Smithii*. Plentiful on the trees between the house and gardens of Penrice Castle.
- Hypnum populeum*. Gathered by myself many years ago in a wood near Bryn Mill, and I believe it has been found in Cline Wood, and other places, (Dillwyn).
- *alpinum*. Gathered by Mr. Woods at Uscoed Eynon Gam, and by myself at Darran yr Ogof, above Ystradgunlais, and it appears to us to be distinct from *Hyp. plumosum*, (Dillwyn).
- *sericeum*. Mumbles Castle and Common.
- *commutatum*. On wet rocks at Darran yr Ogof, and is quite distinct from *Hyp. filicinum*, which grows about Uscoed Eynon Gam, (Dillwyn).
- Marchantia polymorpha* and *hemispherica*. Cromlyn Bog.
- Jungermannia asplenoides* and *epiphylla*.
- Endocarpus miniatum*. Mumbles Castle.
- Parmelia saxatilis*.
- Peltidea venosa*. On Pennard Castle.
- Cladonia uncialis*. Swansea sands.
- Chara translucens*. Found by Mr. Ralfs in Cromlyn Bog.
- *flexilis* and *hispida*. Pools in Cromlyn Bog and canal.
- *vulgaris*. Port Tennant.
- Halidrys siliquosa*. Near Mumbles light-house.
- Fucus vesiculosus*, *serratus* and *canaliculatus*. Mumbles and Swansea sands.
- Himanthalia Lorea*. Not unfrequently washed on shore during storms at sea.
- Desmarestia ligulata*. Not unfrequently picked up, particularly after a storm in the summer months, on the shores of the Mumbles and Caswell Bay, but I do not recollect having found it in a growing state, (Mr. Ralfs).
- Dichloria viridis*. On the shore, among rejectamenta of the sea; not common.
- Elaionema villosum*. Rocks in the sea, about the Mumbles Point; not common.
- Dictyota dichotoma*. On rocks in the sea, not uncommon.
- *atomaria*. In pools among the rocks by the Worms Head, (Dillwyn). In Bracelet Bay, abundant and very fine.
- Chorda Filum*. Swansea sands.
- Cladostephus verticillatus*. On rocks in the sea on the coast of Gower, but not so common as *C. spongiosus*, which abounds on this and I believe on every other shore, (Dillwyn).
- Sphacelaria flicina*. Found in a pool at Bracelet Bay.
- *scoparia* and *cirrrosa*. Bracelet Bay; pools among rocks at Mumbles Point.
- Dumontia filiformis*. Bracelet Bay; the Mumbles.
- *β. crispata*. On rocks in the sea, not uncommon.
- Halymenia furcellata*. Occasionally found among the rejectamenta on the sea-shore.
- Iridaea edulis*. Near the Mumbles light-house.
- Polyides rotundus*. Bracelet Bay, and near the Mumbles light-house.
- Furcellaria fastigiata*. Swansea sands; in pools among the rocks at the Worms Head.
- Delesseria sanguinea*. Pools in Bracelet Bay. This beautiful species is not unfrequently thrown on the sea-shore.
- *sinuosa*. Pools by the Mumbles light-house; and it sometimes attains the

- length of 5 or 6 inches in some large sheltered pools among the rocks at the Worms Head, (Dillwyn).
- Delesseria Hypoglossum*. Pools in Bracelet Bay; abundant among the rejectamenta on the sea-shore.
- Nitophyllum punctatum*. This has frequently been found among the rejectamenta on the sea-shore, (Dillwyn).
- *Gmelini*. Pools by Mumbles light-house and in Bracelet Bay.
- *laceratum*. Pools in Bracelet Bay, where I have gathered some particularly fine specimens.
- Rhodomenia Palmetta*. Bracelet Bay.
- *ciliata* and *palmata*. Mumbles light-house.
- Plocanium coccineum*. Mumbles; Langdon Bay.
- Rhodomela subfusca*. Bracelet Bay.
- Laurencia obtusa*. Found among rejectamenta at the Worms Head, (Dillwyn).
- *dasyphylla*. On rocks in the sea at the Mumbles, (Dillwyn).
- Chylocladia ovalis*. Pools among the rocks in Caswell Bay, and about the Worms Head.
- *kaliformis*. Sometimes found among the rejectamenta of the sea, (Dill.)
- *articulata*. Bracelet Bay.
- Gigartina confervoides* and *plicata*. Bracelet Bay.
- Chondrus mamillosus* and *crispus*. Swansea sands and Bracelet Bay.
- Phyllophora rubens*. Mumbles; rocks in the sea at the Worms Head.
- Gelidium corneum*. Bracelet Bay; rocks in the sea at the Worms Head.
- Ptilota plumosa*. On rocks in the sea; and the var. *β. capillaris* of Turner, with the frond jointed much in the manner of some Confervæ, is very abundant, (Dillw.)
- Polysiphonia parasitica*. Among the rejectamenta of the sea, not common, (Dillwyn).
- By the Mumbles light-house.
- *atrorubescens*. On rocks in the sea along the coast of Gower, (Dillwyn).
- *nigrescens*, *fastigiata* and *elongata*. Bracelet Bay.
- *urceolata* var. *β. patens*. On stems of *Laminaria digitata* in Bracelet Bay.
- Dasya coccinea*. Bracelet Bay.
- Ceramium rubrum*. Swansea sands.
- *ciliatum*. This beautiful species grows with *Cer. diaphanum*, in great perfection, in the rocky pools about the Worms Head.
- Griffithsia equisetifolia*. Rocks in the sea, not uncommon.
- *setacea*. Bracelet Bay and on the coast of Gower.
- Callithamnion plumula*. Bracelet Bay; poor specimens.
- *roseum*. Rocks in the sea, along the coast of Gower, not very common, (Dillwyn).
- *polyspermum*. Common on rocks near high-water mark.
- *tetricum*. Bracelet Bay and Mumbles light-house.
- *tetragonum*. In pools among the rocks in Llanglan and Caswell Bays, and elsewhere on the coast of Gower; generally parasitical on a *Fucus*.
- *thuyoides*, *Turneri* and *Rothii*. Bracelet Bay.
- *repens*. In the sea; common on other Algæ, (Dillwyn).
- *purpureum*. In the cavern under the Mumbles light-house, and other caverns in Gower, where it gives the rocks almost the appearance of being covered with purple velvet, (Dillwyn).

Callithamnion lanuginosum. By the Mumbles light-house.

Batrachospermum moniliforme. In a small brook that runs to the upper end of Cline Wood, and other clear streams, (Dillwyn).

Bulbochete setigera. Found by Mr. W. W. Young, in a rivulet near Cadoxton, (Dill).

Drepanaldia glomerata. In a small stream which crosses the Gower road, on Cline Common. *Conserva mutabilis* of the 'British Conservæ' is different, and is generally a much more common species, (Dillwyn).

———— *tenuis*. In rivulets and springs, growing on various substances, and I rather doubt whether it belongs to this genus, (Dillwyn).

Chatophora endiviaefolia. Cromlyn Bog, near the first bridge on the right hand side going to Neath.

Conserva fontinalis. In a small piece of new garden-ground on the road to Mumbles, formerly waste land.

———— *vesicata*, (alternata, Dillw.) In a rivulet near Swansea, (Dillwyn).

———— *tripartita*. In ditches between Pontardulais and the sea, and it may possibly be a variety of *Conf. rivularis*, (Dillwyn).

———— *disiliens*. On aquatic plants in ditches on Cromlyn Bog, (Dillwyn).

———— *tortuosa*. Rocks in the sea on the coast of Gower.

———— *implexa*. By the Mumbles light-house.

———— *melagonium*. In almost all the pools near low-water mark by the Mumbles light-house and Bracelet Bay, but seldom more than a few threads in a pool.

———— *area*. Pools near high-water mark, at Mumbles and by Salt-house Point.

———— *flacca*. In the sea, parasitical on other Algæ, (Dillwyn).

———— *fucicola*. By the Mumbles light-house.

———— *faccida*. On *Halidrys siliquosa*, in a pool near the Mumbles light-house; found by Mr. Ralfs, who had never before seen it except on *Cystoseira*.

———— *curta*. In the sea, parasitical on *Fuci*, not uncommon, (Dillwyn).

———— *carnea*. On marine Conservæ in the river near Loughor, (Dillwyn).

———— *crispata*. Found by Mr. W. W. Young, in pools and ditches near Newton Nottage, (Dillwyn).

———— *pellucida*. Found among rejectamenta of the sea in Caswell Bay.

———— *diffusa*. On rocks in the sea, (Dillwyn).

———— *rupestris*. Mumbles.

———— *latevirens*. Common on rocks in the sea, and I believe it to be quite distinct from *Conserva glomerata*, (Dillwyn).

———— *lanosa*. By Mumbles light-house.

Sphæroplea punctalis. In a pool on the moor north of Cefn Bryn, where, soon after my work on the British Conservæ went to press, I first found it with the filaments conjugated, (Dillwyn).

Codium tomentosum. Among the rejectamenta of the sea, rare, (Dillwyn).

Bryopsis plumosa. Near Mumbles light-house, in Bracelet Bay.

Vaucheria multicaularis. Common on clayey banks in high and exposed situations throughout the neighbourhood.

Stigonema atro-virens. On wet rocks which form the banks of the river above the fall at Aberdylais, and other similar situations.

Scytonema myochrous. In a mountain torrent near Pont Nedd Vechn. I cannot but think it has much affinity with this genus, and have a note that it belongs, as

also on the authority of Miss Hutchins's *Conferva scopulorum*, to the section Coadonatae of my arrangement, (Dillwyn).

Calothrix nivea. Plentiful in the sulphur-springs of Llanwrtyd, and it abounds in other sulphur-springs, both in Great Britain and on the continent, nor have I ever seen it in any water that is not impregnated with sulphuretted hydrogen, (Dillwyn).

——— *distorta*. Found by Mr. W. W. Young in a rivulet near Cadoxton, (Dill.)

——— *mirabilis*. On stones and stems of Musci in the stream which runs through the wood at Penllergare, (Dillwyn).

Oscillatoria vaginata. Plentiful on rocks and stones in the river which runs through the wood at Penllergare.

Porphyra laciniosa.

Ulva latissima and *Linza*. Mumbles, the latter by the light-house.

Bangia fusco-purpurea. Discovered by Mr. W. W. Young on lime-stone rocks about high-water mark, near Dunraven Castle; and my *Conferva atro-purpurea* may possibly belong to the same species, (Dillwyn).

Enteromorpha compressa. Bracelet Bay.

Mycinema fulvum. On the ruins of Oystermouth Castle, and the chapter-house at Maryam.

Chroolepus aureus. On stones by the side of the Gower road, near the 4th mile-stone from Swansea, and some other shady places, (Dillwyn).

Protonema umbrosum. Boggy ground by Singleton wood, and at Penllergare, (Dill.)

——— *muscicola*. First discovered on hedge-banks in a lane on high ground between Gower and Loughor roads, and it is common, growing generally on mosses, in the woods at Penllergare, (Dillwyn).

Desmidiium Swartzii and *mucosum*. Cromlyn Bog.

Isthmia obliquata, *Diatoma marinum* and *Gomphonema paradoxum*. Bracelet Bay.

Schizonema Smithii. Bracelet Bay, and pools among rocks at Mumbles Point.

——— *Dillwynii*. On rocks near low-water mark under the Mumbles light-house.

J. W. G. GUTCH.

ART. LVIII.— *Varieties*.

124. *Chrysosplenium alternifolium* is found growing on the borders of a stream in Ashworth wood, two miles from Bury, Lancashire, along with *Chrys. oppositifolium*. Here also I have found a variety of the last-named plant, a specimen of which I send you, with three instead of two opposite leaves.—*N. Buckley*; 22, Grafton St. Fitzroy Square, December 4, 1841.

125. Note on *Primula elatior*, &c.* 'The Phytologist' appears to me to offer to botanists, particularly those residing in the country, great facilities for making known any observations they may make relative to the science, and especially with regard to our indigenous plants; and to afford such persons a valuable medium through which they may communicate, and direct the attention of others to, any particular circumstances connected with the habitats of doubtful species. By the publication of such

* See also pp. 191 and 192.

facts, sufficient data might in time be gained to enable botanists to arrive at some just conclusion as to the merits of the individuals in question. The furtherance of this design is the object I have in view in writing this letter; the immediate subject of which is an account of the conditions under which I have found *Primula elatior* growing, and which, in my opinion, bear much on the question of its right to be considered as a distinct species, or as a hybrid production between *P. veris* and *P. vulgaris*. The only locality in which I have chanced to find *P. elatior*, has been at Chinham, near Basingstoke, Hants, where I have found it in tolerable abundance for several successive years. The meadow in which it grows is, as most of the meadows in our "woodlands" are, surrounded either by hedgerows or coppices, which distribution of wood and meadow is peculiarly favourable for the hybridization of such plants as *P. veris* and *P. vulgaris*; the former growing in abundance in the open meadows, and the latter in equal profusion in the hedgerows &c., while the two species intermix, as might be expected, along the border of the field, in which situation the oxlip is found, not extending into the meadow with the cowslip, nor into the wood with the primrose, which it might be expected occasionally to do, were it a distinct plant. Having found the oxlip under the conditions above mentioned, I have for some time considered it in my own mind as a hybrid production; being however aware that it is unsafe to draw conclusions from a solitary instance, I send this communication to your journal, in the hope that some of your correspondents may be induced to detail any circumstances under which the plant may have occurred to them, with a view to the settlement of the question. In the same situation I have not unfrequently met with the variety which has both the single and the manyflowered stalks on the same individual.—*Robt. Southey Hill; Teddington, February 21, 1842.*

126. *Seasons of Crocus nudiflorus.* Miss Worsley was probably correct in supposing that the longer-leaved Crocuses in Nottingham meadows, were plants of *Crocus nudiflorus*, (Phytol. 167). The leaves of that species appear above the ground in winter, and are in perfection about March or April, lasting some time longer. They are thus much forwarder in their growth than are those of *C. vernus*, at the usual time of flowering for the latter species. The root (or, technically, the *cormus*, not root) of *C. nudiflorus* appears to be naturally less than that of *C. vernus*, and it would necessarily be small in the early part of the year, when the new bulb was forming. It is well known to every botanical physiologist (though I have had to explain this to each of three gardeners successively in my service, who injured the flowering of the plants through ignorance of the fact) that the *Crocus* forms an entirely new *cormus* every year; the new one growing at the bases of the leaves, and within the pale sheaths that envelope the lower parts of the leaves. The position of the new *cormus* is immediately above the old one, which gradually withers away, and finally drops off in the shape of a flat plate or scale from the base of the new one. It is stated, indeed, in Mr. Francis's recently published 'Grammar of Botany,' that the new *cormus* is developed underneath the old one; but this is impossible physiologically, as the slightest reflection must convince any botanist at all conversant with the laws of vegetable development. Should this paragraph be printed in 'The Phytologist' for April, it may be suggested to any young botanical readers, to pull up a common crocus, and examine the half-grown new, and the half-withered old *cormus*. The former will be found uppermost, and its position at the bases of the leaves will illustrate the ordinary formation of the stems of Monocotyledonous plants; the crocus "root," as it is commonly called, be-

ing a flattened palm-stem in miniature.—*Hewett C. Watson ; Thames Ditton, March 2, 1842.*

127. *The Genus Tilia.* Sir William Hooker still appears to class the three species (if species we must call them) among the introduced trees of Britain; all of them being distinguished by the (*) in the last edition of the 'British Flora.' Mr. Lees and Dr. Bromfield have half convinced me that *Tilia parvifolia* and *T. europæa* are genuine Britons; but with regard to *T. grandifolia*, it seems to me that the evidences are greatly short of proofs. I allude to the genus just now, in order to remark that some of your correspondents probably do not know *T. grandifolia*; the specimens sent under this name, from the western counties, to the Botanical Society of London, seem all to belong to *T. europæa*. Specimens should be gathered in seed, when the prominent angles of the fruit in *T. grandifolia* will prevent ambiguity or error. The number of flowers, the outline of the leaf, and the disposition of the hairs, are too variable to be relied on as certain characters. There are so few really natural woods in England, that the existence of a wood of lime-trees almost authorizes a conclusion that the wood was originally a plantation. Our remote forefathers did not plant the same trees that we do, nor for the same purposes. With them a quick-growing tree might have been better worth planting than one of slow growth, even though producing superior timber.—*Id.*

128. *Discovery of Leskea pulvinata*, Wahl. As the addition of *Leskea pulvinata* (Wahl. in 'Flora Lapponica,' 369) to the British Flora has not hitherto been announced, I may state that I had the good fortune to discover it near York, on the 30th of October, 1841; and have since ascertained it to occur abundantly about the roots of trees, and on low bushes in situations liable to be inundated by the Ouse. I forbear at present offering any description of this elegant little moss, as I have not yet gathered fruit with perfect *opercula*, and cannot hope to do so earlier than September next. Its closest affinity is with *Leskea polycarpa*, Hedw. (*Hypnum medium*, Dicks.), from which the faintly-nerved (occasionally nerveless) leaves sufficiently distinguish it.—*Richard Spruce ; Collegiate School, York, March 4, 1842.*

129. *The Council of the Botanical Society of London* have issued a set of "Regulations for the Exchange and Distribution of Specimens." These Regulations are chiefly interesting to members, being intended for their guidance in the exchange of plants with the Society. We are glad to see that the Council intend to follow up the frequently-expressed determination of the Committee of the Botanical Society of Edinburgh, to reject all imperfect and ill-dried specimens that may be sent in. The necessity for this public expression of such a determination on the part of the two Societies, shows how little understood is the really simple and easy process of drying plants.

ART. LIX.—*Proceedings of Societies.*

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, January 11, 1842.—Professor Christison in the Chair. The following papers were read.

1. *Notes on preserving the Colour of certain Vegetables by immersing them in hot water:* by Mr. Evans. It is well known to every one who has had any experience in the drying of specimens, that, while many plants are easily preserved by the ordinary means of placing them between layers of absorbent paper, and subjecting them to certain degrees of pressure—there are others that cannot be so readily dried; and some are even so constant in their tendency to turn black in drying, that this feature has been deemed characteristic of them. The use of hot water, as a means of accelerating the process of desiccation in certain vegetables, has been long known to botanists; but the author is not aware of its having been employed, to any extent at least, as a means of preserving their colours. To Mr. Peter Henderson, one of the gardeners at Melville Cas-

thé, the chief merit of this application is due—he having, last summer, succeeded by it in preserving *Lathraea squamaria* and some other plants, which ordinarily become black in drying, particularly *Asperula odorata*, *Melampyrum pratense*, *Agrophis nutans*, *Rhinanthus crista-galli*, and several Orchideæ. During the summer and autumn, Mr. Evans tried the same method, and found that, besides the greater beauty of the specimens thus treated, they could be dried in nearly one half of the time usually required, as also that, from the power of hot water in destroying rigidity, they were much more easily arranged on the drying paper. Mr. Evans observed that while he and his friend, in pursuing this method, were guided almost entirely by the nature of the plants subjected to the process, they considered from twenty to thirty seconds a medium time to keep Orchideæ and other plants of a robust and fleshy nature in the water, which was always kept boiling; while a mere dip was found sufficient for those of a more delicate structure. He is, however, of opinion that the success of their method is not to be entirely attributed either to the temperature of the water used, or the exact time the plants are kept in it, but depends much on the frequent changing, for some time, of the paper in which they are afterwards placed; as unless this is strictly attended to, the specimens will be speedily destroyed by the great quantity of water with which they are at first surrounded. It has been recommended, as a means of freeing the plants from external moisture before placing them in the drying paper, to press them gently between cloths; and this he considers beneficial for plants of a robust nature, but rather injurious to the more delicate ones,—to these he merely gives a gentle shake, but changes the papers sooner about them than the others. Mr. Evans concluded by observing that, besides the utility of this method for retaining the colour of the leaves of such plants as naturally become black in drying, it will be found serviceable in preserving the blue colour of the corollas of Campanulas and some other plants, which rather incline to turn white.

The specimens exhibited by Mr. Evans in illustration of his success, were most beautiful—the colour being in almost all of them perfectly retained; and to show that it was their previous immersion in hot water which had effected this object, he had purposely kept some portions of them out of the water, and in such instances, only the immersed parts had retained their natural colour.

2. *Notice relative to certain Species found in the Parish of Abvah, Banffshire; with a list of Plants observed in that parish:* by the Rev. A. Dodds. Communicated by Mr. W. A. Stables.—The chief interest of this paper arose from the contrast which it presented between the south and north parts of Scotland, in regard to the occurrence and comparative frequency of several species: the recent occurrence of some which have now become generally disseminated, to the farmer's great annoyance, such as *Senecio Jacobææ*, and the gradual disappearance of others which were formerly common, as *Arctium Lappa*, &c.

3. *Description, with drawing, of a Vegetable found on the Gills and Fins of a Goldfish:* by Mr. Goodair.—In this interesting paper Mr. Goodair gave a minute description of the parasite, explaining practically its form, structure, mode of fructification, &c., but the fish having died during its conveyance to town, and putrefaction having commenced before he saw it, his observations were necessarily imperfect on some points which he had felt anxious to illustrate. Professor Christison stated, that above a year ago he had noticed a similar parasite on a goldfish, which was entirely covered with it as with a soft down, but the animal's health did not seem at all affected, and he believed it was still alive—nor was the affection communicated to other fishes which were put for some time in the same vessel with it. Mr. Bennet also stated the result of some microscopic observations made by him on Mr. Goodair's fish, chiefly with reference to the condition of the animal under the invasion of its vegetable foe.

4. *Remarks on the affinities subsisting among Viola lutea, arvensis and tricolor:* by Alexander Seton, Esq., of Mounie.—Mr. Seton says that not having been able to discover any definite or permanent distinction between the plants which had been termed *Viola lutea* and *tricolor*, his attention was directed to their comparative appearance and habits in native situations; and having found all gradations of form, colour and habit between the extreme characters of the perennial plant called *lutea* and the annual called *tricolor*, he had come to the conclusion that they are originally from the same stock or species. As to the form of the stipules, and the different degrees of ramification or divarication in the stem, which Smith, Hooker, and other writers have adopted as distinguishing marks, they are so varying as to be totally unsuitable for that purpose. On the other hand, the *Viola* which has been by some termed *V. arvensis*, but has for the most part been considered as a variety of *V. tricolor*, is so different, and so constant in its general character, that he is inclined to consider it a separate species, though in most particulars extremely similar. It is completely annual, and he has never found it with that multiplicity of stems arising from a spreading root and radicating at their base, which are usual with the two others when they have remained for any length of time undisturbed. It is also taller and more succulent in the herbage than *V. tricolor*, even when the latter is in a rich and congenial soil; and it maintains its characteristics when propagated by the seeds, without those gradations of variety which obliterate distinctions of species: for, having observed it growing in corn-fields and by waysides, along with *V. tricolor*, not only in this kingdom, but also in France, Italy and Germany (in all of which countries both species are common), he uniformly found it retaining its own peculiarities, unblended with those of its congener.—But, though the habits and general appearance of the plants are considerably different, yet their various parts are so much alike that he is unable to find any other descriptive distinction than the proportion between the calyx and corolla. Mr. Seton also notices some remarkable variations in form and habit, obviously arising from soil or locality, in several other plants, such as *Trifolium pratense*, *Plantago lanceolata*, &c.

5. *Notice respecting some late additions to the Flora of Jersey:* by Mr. Joseph Dickson, Corresponding

Secretary.—The chief interest of this paper consisted, as in the case of No. 2, in the contrast afforded with the vegetation of other parts of Britain; and the author promised to take an early opportunity of extending his observations on this subject.—*Edinburgh Evening Post and Scottish Standard*; January 19, 1842.

Thursday, February 10, 1842.—Professor Graham in the Chair. The following papers were read.

1. *Notices of several Vegetable Monstrosities, with Specimens*: transmitted by Mr. H. C. Watson, and others.—Some of these monstrosities were very interesting, particularly a *Geranium (pusillum?)* having the branches terminated by heads or umbels of flowers, through adhesions and excess of parts,—the petals being mostly green or obsolete and the stamens imperfect; *Anthriscus sylvestris* with the umbels proliferous, which was gathered in the wet autumn of 1839; *Linaria repens*—varieties growing together, and showing a gradual approach to *L. vulgaris*; *Anemone nemorosa*, having the pistils changed to leaves; and *Galium Aparine*, presenting a remarkable *usus naturæ*, probably caused by insects, the quadrangular stem being twisted, so that the stellate leaves have become secund.

2. Mr. Goodair described the *Sarcinula Ventriculi*, a new vegetable infusorial allied to the genus *Gonium*, which he had found existing in immense numbers in the fluid ejected, for many weeks, from the stomach of a patient labouring under a particular form of indigestion. This fluid was ejected in large quantities at a time, and had an appearance similar to that of liquor in a state of fermentation. The plant is microscopic—of a square form, and having the parts arranged in a beautifully symmetrical manner in the square. The number of cells of which the plant consists is 64; it propagates by the division of each of these 64 cells into 4 new ones, so as to consist of 256 cells—and simultaneously with this increase in the number of parts, divides spontaneously into four young plants.

The author then adverted to the extremely rapid increase of the plant by such a mode of propagation; and after some observations on the nature of the disease in which it occurred, and of which it probably constituted the cause, he concluded with remarks on the genera of plants and animals to which the new plant is allied.

3. *On Primula veris and allied species*: by the Rev. J. E. Leefe.—Mr. Leefe, after remarking that *Primula inflata*, Lehm., approaches very near to *P. veris*, says—"in the woods at Audley End, Essex, I find a good deal of what is commonly known as *P. elatior* intermixed, but sparingly, with primroses and cowslips. It agrees with the character of *P. elatior*, Jacq., as defined by Koch, but not with the figure in 'English Botany.' The calyx-teeth are more ovate at the base, and the leaves are those of a cowslip—indeed the teeth are almost precisely the same in form as those of the *P. inflata* before alluded to. The limb of the corolla is, however, equal in breadth to more than half of the tube, and is flat, or nearly so."

Professor Henslow writes on this subject:—"With respect to the identity of the three common *Primula*, I consider that no argument can be derived from their keeping distinct, in nature or under culture. It is purely a physiological question, whether all of them may not originate from the seeds of any one—a question which can only be decided by direct experiment. Let a cowslip be highly manured, and its seeds sown in a shady, moist aspect, and I suspect the chances are in favour of some of them coming up as primroses, or, at least, as oxlips. I have had several independent testimonies to the fact of cowslip roots changing to primroses; and until proof, by direct experiment, contradict the experiments of Mr. Herbert and myself, I cannot help believing that the three species (as they are thought) and the polyanthus, are merely races of one species."

4. *On certain Fungi found near Audley End, Essex, &c.*: by the Rev. J. E. Leefe.

5. *Notice of additions to the Flora of Aberdeen*: by Mr. George Dickie, Lecturer on Botany, King's College, Aberdeen.

6. *On the varieties of Dryas octopetala*: by Mr. C. C. Babington, M.A., F.L.S., F.G.S., &c. The characters distinguishing these are the proportional length and form of the sepals—the form of the base of the calyx—the form of the leaves—and the pubescence of the petioles. Two of these varieties are apparently confined to Ireland, where Mr. Mackay first noticed the differences existing among plants of this species—and the third is commonly found in alpine situations in England, Scotland, and on the continent of Europe. The latter being the best known form, may be considered as the type of the species, and in it the sepals are acute, and three or four times as long as broad—the base of the calyx being hemispherical; in β the calyx is very nearly the same, being only less acute; but in γ the sepals are scarcely twice as long as broad and very blunt, and the base of the calyx is truncated in a very remarkable manner.—*Id.* February 16, 1842.

Thursday, March 10, 1842.—Professor Christison in the Chair. The following papers were read.

1. *On four new species of British Jungermannia*: by Dr. Taylor, Dunkerron. Communicated by Mr. Wm. Gourlie, jun., Glasgow.—Mr. Gourlie read the descriptions of the species, and illustrated them by beautifully preserved specimens. Some of these were so minute as to require microscopic aid for their examination,—a circumstance which enhances the merit of their discovery by Mr. Wilson and Dr. Taylor, who have laboured with so much zeal and success in the field of Cryptogamic Botany. The following were the species described:—*Jungermannia Wilsoni*, Taylor, discovered by William Wilson, Esq., at Cromaglow, Killarney, in November, 1839, and named in compliment to him by Dr. Taylor. *J. stellulifera*, Taylor, also discovered by Mr. Wilson, who found it near Crich, in Derbyshire, in September, 1833. *J. voluta*, Taylor, and *spicata*, Taylor, both discovered near Killarney, in 1841, by Dr. Taylor.

Mr. Gourlie afterwards exhibited specimens of the following plants:—*Leskea pulvinata*, Wahl., discovered near York, by Mr. R. Spruce. *Anictangium Hornschuchianum*, discovered at Cromaglow by Dr.

Taylor; both new to the British Flora. *Jungermannia Balfouriana*, Taylor MSS., a new and highly curious species, brought from New Zealand by Dr. Stanger, and named by Dr. Taylor in compliment to Professor Balfour of Glasgow, from whose herbarium the specimens were communicated.

2. *Notice of the discovery of Herniaria glabra in Berwickshire*, by Mr. William Marshall; and of *Linnaea borealis* in the same county, by Dr. Johnston: communicated by Dr. Greville. The former of these species has generally been regarded as a native of the south of England, but there seems no reason to doubt its being indigenous in the above station. It was observed that Mr. Gorrie had found the plant abundantly in Perthshire, where he had no doubt it must have escaped from gardens, though now quite naturalized, and almost a weed in some places. The discovery of a new station for the lowly but beautiful plant named in honour of Linnaeus, is always a matter of interest, and especially in the south of Scotland, where it occurs very rarely.

3. *On four new species of Desmidiun*: by Mr. J. Ralfs. — Mr. Ralfs observes that "this natural genus is not well defined either in Agardh's 'Conspectus Criticus Distomacearum,' or in any of our British works. Its best distinctive character seems to consist in the crenated appearance of its filaments, which is least evident in *D. mucosum*. These filaments, which are generally twisted in a regular manner, are of a pale green colour, simple, fragile, short and straight. The species are found during a great part of the year in clear shallow pools, or in old peat bogs,—the filaments being scattered in loose bundles in the water, or forming a thin gelatinous fleece at the bottom of the pool." The species ascertained by Mr. Ralfs are named by him *D. cylindricum*, *mucosum*, *Swartzii* and *Borreri*.

4. *Illustrative Drawings of Australian Plants*: by the Misses M'Leod of Sydney. These drawings, which are extremely well executed, were transmitted to this country by the ingenious ladies, in order to have the species ascertained which had most struck their fancy in that land of remarkable productions.

5. *Notice on the adhesion of Lepas or Barnacle to Fuci &c.* by Mr. Edmonston; with a specimen communicated by Mr. Archibald Gibson, Accountant. — Some observations were made by Mr. Edmonston and others with regard to this parasite, which at one time was popularly regarded as the veritable origin of the barnacle goose.

6. Mr. Edmonston read a letter from Mr. P. J. Brown, of Thun, respecting the three species of primroses usually considered to exist in this country. He says—"Against Sir James Smith's opinion (in Rees's Cyclopaedia), that *Primula elatior* may be a mule between *veris* and *vulgaris*, I may observe that the three are not often the inhabitants of the same district,—*veris* is almost universally diffused; but where *vulgaris* is very abundant, I have rarely seen *elatior* in any quantity, and by far the most frequently not at all; while in general, as is the case at Thun, *elatior* grows by thousands in places within many leagues of which *vulgaris* is absolutely unknown. *P. vulgaris* contents itself with an elevation but little above the level of the sea, although in the neighbourhood of the Lake of Geneva it is in perfect condition at from 1200 to 1500 feet; but at Thun, with an elevation of 1900 feet, it languishes, whether planted in a thicket, on a bank, or in a garden; while *elatior*, being more aspiring, prefers an elevation of from 1500 to 2000 feet, and although willingly climbing beyond the latter, descends reluctantly below the former level.

Professor Balfour (of Glasgow) made observations on the distinctions among the genera of Ferns—*Anemia*, *Mohria*, *Coptophyllum*, *Trochopteris* and *Schizaea*, some of which had been recently established by Mr. Gardner. The Professor next alluded to the various theories which have been advanced to account for the origin of woody fibre, and more especially to that of Du Petit Thouars. He showed by sections of palms that the interlacing of the fibres in Endogenous plants was quite in conformity with Du Petit Thouars' theory, and that the appearance of the woody matter in tree ferns, and in the natural orders *Piperaceae*, *Aristolochiaceae*, and the formation of roots externally in screw pines, *Velloeias*, &c., all supported the theory of wood being formed by the development of fibres from buds acting as fixed embryos. Dr. Balfour also endeavoured to show that the formation of what have been called by Dutrochet *embryo buds*, may, in many cases, be accounted for by the development of leaves on them at one period of their growth; and that on examining some others which he exhibited, the woody matter might be traced communicating with the albumen, at one point by rupture of the bark, and insinuating itself between the layers of bark.—*Id.* March 16, 1842.

BOTANICAL SOCIETY OF LONDON.

February 18. — Dr. Willshire in the Chair. The following donations were announced. Specimens of *Uva? calophylla*, found on the coping of a wall in Banbury Churchyard by Mr. Thomas Beesley, and presented by him: foreign plants from Mr. B. J. Shuttleworth, Professor Meisner, Mr. J. D. Salmon, and The Rev. Christian Munch: British plants from the Botanical Society of Edinburgh and Miss Moxon: British mosses from Mr. G. H. K. Thwaites: books from Mr. B. J. Shuttleworth and Mr. Thomas Beesley. A paper was read from Henry Oxley Stephens, Esq., being "Notes on *Epilobium angustifolium* and *Epilobium macrocarpum*." Since the publication of Mr. Leighton's papers on these plants in the 'Annals of Natural History,' Mr. Stephens had received a communication from Sir W. J. Hooker, in which he stated that the characters pointed out by Mr. Leighton and Mr. Stephens did not seem sufficient to constitute a species; and subsequently Mr. S. states that his *macrocarpum* is the *angustifolium* of Linnaeus. Dr. Willshire offered some remarks "On *Adelia nereifolia*," and exhibited its structure by means of the microscope.—*G. E. D.*

THE PHYTOLOGIST.

No. XII.

MAY, MDCCCXLII.

PRICE 6D.

ART. LX. — *Localities of British Algæ in addition to those given in Harvey's Manual.* By JOHN RALFS, Esq.

Penzance, January 10, 1842.

SIR,

Several of my friends having expressed their regret that Mr. Harvey did not give a greater number of new habitats in the 'Manual of British Algæ,' though considering the short stay he made in England I was surprized to find so many as there are, I avail myself of the facility afforded by 'The Phytologist' to make the following addition to the number given in that work. I either possess, or have seen, specimens from all the habitats given.

My friend Mr. Dickie finds *Gelidium? rostratum* plentiful about Aberdeen, on the stems of *Laminaria digitata*.*

Yours very truly,

JOHN RALFS.

To the Editor of 'The Phytologist.'

I confine myself in the following List to the species mentioned in the Manual, or in the 'Supplement to English Botany.'

Cystoseira granulata. Small cove near Aberffraw, Anglesea.

Lichina confinis. Common on most rocky coasts, as Devon, Cornwall, Wales &c., generally within reach only of the spray.

Laminaria debilis. Salcombe; April.

— *fascia*, (Eng. Bot. t. 2845). Salcombe; Mount's Bay, Cornwall, plentiful; April.

Dictyota atomaria. Tenby; Rev. T. Salwey. Bracelet Bay, Glamorganshire.

Dictyosiphon feniculaceus, (Eng. Bot. t. 2746). Abundant in the Menai Strait.

Striaria attenuata. By flood-gates of mill-pool opposite Devonport.

Asperococcus compressus, (Eng. Bot. t. 2846). Mount's Bay.

— *pusillus.* Caernarvon.

Sphacelaria filicina. Mount's Bay, sparingly; between Holyhead and Holyhead Mountain.

— *plumosa.* Beaumaris; thrown up on the shore at Barnmouth.

— *radicans.* Ilfracombe; Mount's Bay; Land's End.

— *P. velutina.* Torbay; Salcombe; Mount's Bay.

Ectocarpus fasciculatus. Mount's Bay, on stems of *Laminaria digitata*.

— *Hinchiae.* Torquay; Miss Griffiths. Breakwater, Plymouth; Rev. W. S. Hore.

— *crinitus.* Salcombe.

* See note by Mrs. Griffiths, page 203.

- Ectocarpus pusillus*. St. Michael's Mount, Cornwall.
- *sphaerophorus*. Mount's Bay; Sennen Cove, Land's End; Milford Haven; near the Menai Bridge.
- *Mertensii*. Mount's Bay, near Penzance.
- Helminthocladia virescens*. Common. Plymouth; Mount's Bay; Aberystwith; Caernarvon; Bangor, &c.
- Mesogloia multifida*, var. *subsimpler*. Land's End.
- *Hudsoni*. Aberffraw, Anglesea.
- *coccinea*. Salcombe.
- Gloiosiphonia capillaris*. Mount Edgecombe; Rev. W. S. Hore.
- Naccaria Wiggii*. Salcombe.
- Nitophyllum punctatum*, β . *ocellatum*. Mount Edgecombe; Rev. W. S. Hore.
- *ulvoidium*. Scilly Islands; Miss M. White. Mount Edgecombe; Rev. W. S. Hore. Salcombe.
- *Gmelini*. Mount Edgecombe; Rev. W. S. Hore. Bracelet Bay, Glamorganshire, very abundant.
- Rhodomenia reniformis*. Witsand Bay, Land's End.
- Rhodomela scorpioides*. Plymouth, abundant.
- Bonnemaisonia asparagoides*. Scilly Islands; Miss M. White. Mount's Bay; Mr. Carnow.
- Chylocladia parvula*. Falmouth; Miss Warren. Mount's Bay.
- Gigartina Griffithsia*. Mount's Bay.
- Chondrus norvegicus*. Mount's Bay.
- Grateloupia filicina*, (Eng. Bot. t. 2780). Lynmouth, Devonshire; Rev. W. S. Hore. Mount's Bay, plentiful.
- Ptilota plumosa*, a. *major*. Between Holyhead and Holyhead Mountain. Although this form is common in Scotland and the North of England, it becomes very scarce as we advance southward.
- Polysiphonia parasitica*. Mount's Bay; Land's End; Holyhead.
- *cristata*. Mount's Bay; Mr. Carnow. Land's End.
- *thuyoides*. Ilfracombe, plentiful; St. Michael's Mount. In Mr. Dillwyn's herbarium are specimens of this plant gathered thirty years ago.
- *spinulosa*. Falmouth Bay; Miss Warren.
- *violacea*. Plymouth; Mrs. Griffiths. Caernarvon.
- *pulvinata*. Salcombe; Mount's Bay; Land's End.
- *byssoides*. Shores of Wales, common.
- Dasya ocellata*. Mill-pool opposite Devonport; Rev. W. S. Hore. Mount's Bay.
- Spyridia filamentosa*. Cove near Aberffraw, plentiful; Holyhead.
- Griffithsia equisetifolia*. Coast of North Wales, common.
- *corallina*. Caernarvon.
- Callithamnion Hookeri*. Salcombe; Mount's Bay; Milford Haven.
- *roseum*. Falmouth; Miss Warren. Salcombe; Teignmouth; Milford; Menai Strait; Barmouth.
- *byssoides*. Falmouth; Miss Warren. Mount's Bay; Milford Haven; Caernarvon.
- *polyspermum*. Teignmouth; Salcombe; Plymouth; Mount's Bay; Milford; Bangor; Caernarvon, &c.
- *Borreri*, β . *seminudum*. Land's End.

Callithamnion gracillimum. Milford Haven.

——— *thuyoides*. Ilfracombe; Bracelet Bay, near Swansea.

——— *spongiosum*. Cawsand Bay, near Plymouth; Land's End; Holyhead.

——— *pedicellatum*. Salcombe; Mount's Bay; Milford Haven.

——— *barbatum*. Plymouth.

——— *Pluma*. Torbay.

Chætophora pellita. Land's End; Mount's Bay.

Conferva pellucida and *diffusa*. Aberffraw and Holyhead abundant.

——— *refracta* and *glaucescens*. Mount's Bay.

Mougeotia cærulescens. In several places about Penzance.

Codium adhærens, (perennial). Sennen cove, Land's End.

Bryopsis hypnoides, (Eng. Bot. t. 2781). Ilfracombe.

Vaucheria velutina. Near Holyhead.

——— *clavata*. Pilton, Devonshire; Mrs. Griffiths. Specimens much taller and more diffuse than the figure in the 'Gleanings,' but Mr. Berkeley considers that it belongs to this species.

Rivularia plicata. Salcombe; Ilfracombe; Barmouth.

——— *nitida*. Cawsand Bay, near Plymouth; Mount's Bay.

Scytonema turfæa, (Berkeley in Eng. Bot. t. 2826). Sussex, Mr. Borrer.

Calothrix interrupta. Machynlleth, North Wales.

Lyngbya majuscula. Ilfracombe; Plymouth; Mount's Bay; Anglesea, near the Menai Bridge.

——— *ferruginea*. Sussex; Mr. Borrer. Near Holyhead.

——— *Carmichaelii*. Mount's Bay.

——— *speciosa*. Mount's Bay.

Oscillatoria Friesii. Many places in North Wales.

——— *cyanea*. Towednack Church, near St. Ives; the Rev. H. Penneck.

Ulva calophylla. Oswestry, Shropshire; Rev. T. Salwey. Aberdeen; Mr. Dickie. Llanberris; Capel Cerrig and Dolgelly, North Wales.

Bangia Laminariae. Scilly Islands; Miss M. White. Mount's Bay.

Palmella Ralfsii. Cwm Bychan, Snowdon, Glyder &c., North Wales.

Hydrurus Ducluzelii. River Ogwen near Bangor. I am not certain about the species; I had no microscope with me, and neglected to preserve specimens: it was not half the size of the Devonshire plant.

Nostoc sphaericum. Llyn Coron, Anglesea, near Caernarvon.

Anabaina Jacobi, (*Sphærozyga Jacobi*, Berk. in Eng. Bot. t. 2826, fig. 2). Northamptonshire; Rev. M. J. Berkeley. Swansea? not certain about the species.

Eutomia rotata. Penzance; Swansea; many places in North Wales.

——— *oblonga*. Penzance; Caernarvon.

Chroolepus Arnottii. On the root of a yew, Penn's Rocks, Tonbridge Wells; Mr. Borrer.

Meloseira varians. Sussex; Mr. Borrer, who is of opinion that it is not uncommon. Penzance; Tavistock; Dolgelly.

Desmidiium Swartzii. Penzance; Swansea; Dolgelly; Caernarvon.

Fragilaria aurea. Mount's Bay.

——— *diatomoides*. St. Michael's Mount; Land's End.

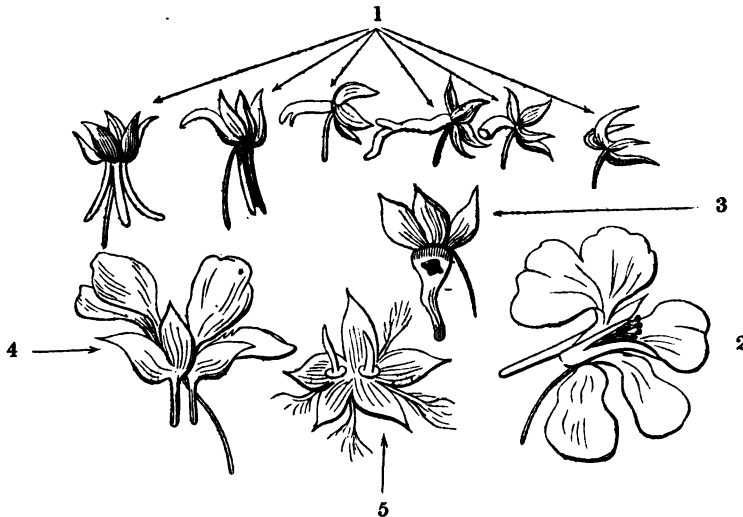
——— *hyemalis*, Lyngb. Tavistock, Devonshire; and Dolgelly, North Wales; near Barmouth; Rev. T. Salwey.

- Achnanthes longipes*. Shoreham Harbour, Sussex; Mr. Borrer. Ilfracombe.
 ——— *exilis*, Kutz. Oswestry, Shropshire; Rev. T. Salwey. Cader Idris, North Wales; and near Penzance.
Isthmia obliquata. Ilfracombe
Diatoma tenue. Henfield and Lewes, Sussex; Mr. Borrer.
Exilaria fulgens. Ilfracombe.
Meridion circularis. Sussex; Mr. Borrer. Aberdeen; Mr. Dickie. Oswestry; Rev. T. Salwey. Dolgelly.
Licmophora splendida. Salcombe, abundant on *Griffithsia corallina*.
 ——— *flabellata*. Mount's Bay; Land's End.
Gomphonema Berkeleyi. Northamptonshire, not uncommon; the Rev. M. J. Berkeley. Henfield, Sussex; Mr. Borrer. Shrewsbury; Mr. Leighton.
Berkeleya fragilis. Southampton; Miss Hill.
Schisonema obtusum and *ramosissimum*. Milford Haven.
 ——— *helminthorum*. Mount's Bay and Teignmouth.
 ——— *virescens*. Mount's Bay.
 ——— *implicatum*. Teignmouth.
 ——— *comoides* and *Grevillii*. Ilfracombe and Milford Haven.

Figures in 'English Botany' not quoted in the Manual.

- Vaucheria caespitosa*, t. 2841. *Polysiphonia cristata*, (*Fucus cristatus*),
Bulbochæte setigera, t. 2086. t. 1925.
Ulva Linza, t. 2755. *Achnanthes brevipes*, t. 2842, fig. 1.
 ——— *crispa*, t. 2754. *Odontella aurata*, t. 2842, fig. 2.
Enteromorpha intestinalis, t. 2756.

ART. LXI. — Varieties.



130. Note on Irregularities in the Flowers of *Tropæolum atro-sanguineum*. As the

observation of the irregularities in plants is not only interesting in itself, but has also proved useful in establishing the laws which regulate their growth, I beg leave to forward to you the accompanying sketch of some which I observed in the autumn of 1836, on a bed of *Tropaeolum atro-sanguineum*. No. 1 represents a series of the calyx and spur, showing a gradual change from an almost complete absence of the spur to the development of three. In another instance where the spur was absent, its place was supplied by an additional sepal. In No. 2 the spur was fully developed, and another spur was formed, which was inverted, and its point appeared among the stamens: in the figure the petals are turned back to show its position. No. 3 is the external appearance of the spur, showing the place where the second spur is inverted. The same irregularity I have frequently observed since that time; and in 1837 I found an instance (No. 4), in which two spurs were developed and both inverted, presenting the appearance in the inside of the flower represented in No. 5. On each of the points I found a small drop of honey.—*Anna Carpenter*; 2, *Great George St., Bristol*, January 18, 1842.

131. *List of Mosses &c. collected in Wharfedale, Yorkshire.* The plants mentioned in the following list were collected in Wharfedale, Yorkshire, on the 18th and 20th of December, 1841; they were all found within a space of a little more than three miles along the banks of the Wharfe, extending from Bolton Abbey to Barden Tower, where the mill-stone grit is the prevailing geological formation. When I state that the season was one of extreme severity; that I had in most instances to clear away the rime before I could ascertain what I was collecting; and lastly, to cut up the frozen masses with my knife;—I think the collection will be considered an interesting one. I have to acknowledge my obligation to Dr. Taylor for clearing up my doubts with regard to a few of the species.

<i>Muci.</i>		
<i>Gymnostomum viridissimum</i>	<i>Hypnum populeum</i>	<i>Jungermannia levigata</i>
<i>Tetraphis pellucida</i>	plumosum	tomentella
<i>Weissia fugax, Hedw.</i>	brevirostre	serpyllifolia
<i>Grimmia rivularis, Bridel.</i>		minutissima
<i>Didymodon rigidulus</i>	<i>Hepaticae.</i>	<i>Tamarisci</i>
capillaceus	<i>Jungermannia asplenio-</i>	furcata, β . elongata
<i>Trichostomum lanuginosum</i>	des; a variety with	
<i>Dicranum flavescens</i>	entire leaves	<i>Lichenes.</i>
<i>Cinclidotus fontinalioides</i>	pumila	<i>Baeomyces roseus</i>
<i>Bryum gracile, Wils.*</i>	sphaerocarpa	<i>Endocarpon miniatum</i>
marginatum	ventricosa	<i>Parmelia herbacea</i>
<i>Bartramia gracilis</i>	connivens	<i>Sticta pulmonaria</i>
<i>Neckera pumila</i>	nemorosa, γ . recurvifo-	<i>Collema lacerum</i>
crispa	scalaris	[lia <i>ceranoides, Borr. in E.</i>
<i>Anomodon curtipendulum</i>	barbata, β . minor	<i>Bot. Supp.</i>
viticulosum	trichophylla	<i>Solorina saccata</i>
	platyphylla, 2 or 3 vars.	<i>Sphaerophoron compressum</i>

—*Richard Spruce*; *Collegiate School, York*, March 4, 1842.

132. *Note on Didymodon flexicaulis.* I may add that I observed *Didymodon flexicaulis, Schlecht.*, in considerable quantity near Skipton; it appears to be common in

* Discovered by Mr. Wilson in 1833.

Yorkshire, as I have gathered it on the magnesian limestone near Tadcaster, and Mr. Ibbotson finds it at Castle-Howard. Dr. Greville, too, informs me that he noticed it last autumn in various parts of Craven.—*Id.*

133. *Mosses near Castle-Howard.* After my visit to Wharfedale, I passed a short time in the neighbourhood of Castle-Howard; but the continuance of the storm prevented me from botanizing to any extent. I had, however, the pleasure of discovering, in company with Mr. Ibbotson, *Hypnum Blandovii* and *Bryum affine*,* in the same bog where he had a short time previously gathered *Leskea dendroides* (in fruit) and *Hypnum nitens*. Pursuant to a suggestion from Mr. Wilson, we intended to search further in the same locality for *Bryum squarrosum*, which Mr. W. discovered in Cheshire accompanying the plants above named, but were disappointed by the setting in anew of the frost and snow. A letter however from Mr. Ibbotson, dated 28th February, contains the interesting intelligence that he has found *Hypnum nitens* and *Bryum affine* coming copiously into fruit; and, more than all, the wished-for *Bryum squarrosum* in equal abundance! To use his own words,—"there is a space of not less than an acre, on which this and *Hypnum nitens* are the chief plants."—*Id.*

134. *Trifolium incarnatum.* Although *Trifolium incarnatum* has been introduced into some of our later botanical catalogues as an indigenous production, it does not appear to be often met with. Mr. Peete, and another experienced botanist whom I have consulted, have never seen it, except as a cultivated plant, in the fields. It may not, therefore, be uninteresting to mention, that I met with a very fine cluster of it, in full bloom, about the beginning of last June, on a piece of waste land at Norwood, in Surrey, quite away from any fields where the plant was likely to have been sown for agricultural purposes. I have no doubt at all of the identity of the flower. In Martyn's 'Flora Rustica' *Trifolium incarnatum* is said to vary in the colour of the spike, from bright to very pale red; the colour of my specimens was a very beautiful bright red. If it should be practicable to visit the same spot this year, at the proper time, I shall see whether the plant has maintained its position there. I do not doubt at all that it would be most proper to consider the plant which I found as an accidental occupant of the soil; but, when we find that this elegant species of *Trifolium* has been seen in such sterile spots as the Lizard Point in Cornwall, by the Rev. Mr. Hore; on the sands, in two separate places in Jersey, by Mr. Babington; and again, on the gravelly soil of Norwood;—we may yet hope to meet with its bright silky flowers in sufficient abundance materially to enhance the charms of our English Flora.—*William Ilott; Bromley, Kent, March 7, 1842.*

135. *New localities for Carex elongata.* Will you allow me, through the medium of your valuable and excellent little journal 'The Phytologist,' (for the institution of which the botanical world owes you a lasting debt of gratitude), to make known to you and your readers the discovery of no less than *five* additional habitats for one of the most rare and beautiful of our British Carices;—I allude to *Carex elongata*, *Lin.* This species, as you are well aware, for many years had only *one* authentic station in this country, first recorded by the late Mr. Jonathan Salt, who found it on the banks of the Don, near Sheffield. It was afterwards gathered at Colemere, in Shropshire, by the lamented J. E. Bowman, Esq., of this place, who obligingly furnished me with a specimen from that locality. My friend Mr. Wilson, of Warrington, also discovered

* Frequent near York, in moist situations.

it many years ago at Over, where, he writes me word, it still exists in small quantity. Lastly, it is recorded in the Yorkshire Flora, as being found in the neighbourhood of Boroughbridge. One of the five new localities is at a place near Town-lane Bridge, which crosses the Worsley Canal near Tildale, about nine miles from Manchester: the plant here grows in an alder-swamp in great abundance, and was first discovered several years since by Mr. John Martin, a humble but ardent investigator of the arcana of Nature, who resides near the spot; by him it was sent to Mr. Wilson, who determined its identity. The second locality was discovered by my friend Mr. Buxton, on the 24th of last May, about four miles from Manchester, near the village of Chorlton, where it exists in profusion, encircling and growing in three large ponds, or, as they are technically termed here, "*piis*:" and this habitat, I may remark *en passant*, is one that is not likely to be destroyed by the ruthless and unsparing hand of *improvement*, either real or imaginary. Mr. B. also found it a few days prior to this, in considerable plenty, on the swampy banks of Rostherne Mere, Cheshire, a large and beautiful inland lake, and a locality rich in botanical productions, particularly in the genus *Carex*. The fourth locality is one that was pointed out to me when on a visit to Warrington last summer, by Mr. Wilson, who had long been aware of its existence there: the "pit" is in a field near to Bruch Farm, about a mile and a half from Warrington, on the road to Manchester, and here, likewise, it is in great abundance. During our rambles together on the same day, we again met with this delightful plant in very great quantities, completely lining the sides of the ditch for a very considerable distance; this was previously entirely unknown to Mr. Wilson, and you may be assured our delight was commensurate with the value of the discovery. The name of the lane I do not at this moment remember, but it is in the immediate vicinity of Warrington, and would be most readily pointed out to any one happening to visit that neighbourhood, and who might be desirous of gathering it, by Mr. Wilson, whose courtesy and urbanity to all who are ambitious of increasing their knowledge in natural science, is such as to merit the highest meed of praise.—*J. B. Wood, M.D.; Broughton, near Manchester, March 9, 1842.*

136. *New locality for Carex axillaris.* It also affords me much pleasure to add another to the localities already known for the equally rare *Carex axillaris*. This was also found by my indefatigable friend Buxton, in company with Mr. J. Martin, on the 30th of last May (1841), about one mile west of Leigh, in Westleigh, and about ten miles from Manchester: the plant was growing sparingly from the hedge-bank, and much cropped by cattle. In connexion with this species, perhaps you will permit me to observe, that during a short stay in York last summer, on my return from a very prosperous botanical visit to Teesdale, I had the pleasure of calling upon Mr. Baines, the author of the excellent 'Flora of Yorkshire;' and in looking over his duplicates, I met with a single specimen of *Carex axillaris*, which is now in my herbarium. It was not then known to him, but *he assured me most confidently that he had gathered it himself* in Heslington fields, near York, shortly before, and that, as far as his recollection served him, it was in considerable quantity. I hope, however, that either Mr. Baines, or some other resident botanist, will elucidate this fact clearly and satisfactorily, and favour us with the result of his investigation through the pages of 'The Phytologist,' which are always open for the promulgation of truth and the advancement of botanical science.—*Id.*

137. *List of Mosses &c. collected chiefly at Leith Hill, Surrey.* I returned this morning from a two days' excursion in Surrey, whither I had accompanied my friend

Mr. Ward, in quest of fresh air, exercise, scenery and health, and at the same time to renew my acquaintance with whatever mosses and Hepaticæ might fall in my way. As many of your readers may not be aware how large a portion of the plants composing these two most interesting orders may be discovered so near London, and in so short a time as that which we devoted to searching for them; I subjoin a list of all that we found, marking those which grew on Leith Hill or its neighbourhood with the letter L; those at Box Hill, Headley, or Walton, with the letter B. To these places only, I should say, did our ramble extend. The species not in fruit are marked 0.

<i>Phascum subulatum</i> , L. B.	<i>Orthotrichum affine</i> , B. β . L.	<i>Hypnum proliferum</i> , L. B. 0
muticum, L.	striatum, L.	prælongum, L.
cuspidatum, B.	crispum, L.	rutabulum, L.
<i>Sphagnum acutifolium</i> , L. 0	<i>Bryum palustre</i> , L. 0.	velutinum, L.
obtusifolium, L. 0	argenteum, L. 0	ruscifolium, L.
<i>Gymnostomum truncatum</i> , var. β . B.	capillare, B.	striatum, L.
<i>Weissia controversa</i> , L.	cæspititium, L. B.	confertum, L. B.
<i>Didymodon purpureus</i> , L. B.	nutans, L.	cuspidatum, L. B. 0.
rigidulus, L.	ligulatum, B. 0.	stellatum, β . B. 0.
<i>Trichostomum canescens</i> , B. 0.	punctatum, L.	loreum, L. 0.
	hornum, L.	triquetrum, L. 0.
	cuspidatum, L.	squarrosus, L. 0.
<i>Dicranum bryoides</i> , β . L.	<i>Bartramia pomiformis</i> , L.	cupressiforme, L. B.
adiantoides, L.	fontana, L. 0.	and var. γ . B.
taxifolium, L.	<i>Leucodon sciurioides</i> , L. 0.	molluscum, B. 0.
undulatum, L. 0.	<i>Neckera pumila</i> , L.	<i>Lunularia vulgaris</i> , with
scoparium, L.	<i>Daltonia heteromalla</i> , B.	gemmæ, L.
varium, B.	<i>Hypnum trichomanoides</i> , L.	<i>Jungermannia epiphylla</i> , L.
heteromallum, L. B.	complanatum, L.	β . longifolia, L. 0.
<i>Tortula rigida</i> , L.	undulatum, L. 0.	endiviæfolia, L. 0.
muralis, & var. β . L. B.	denticulatum, L. 0.	furcata, L. 0.
ruralis, L. B.	tenellum, L.	asplenioides, L. 0.
subulata, L.	serpens, L.	emarginata, L. 0.
unguiculata, L. B.	purum, B.	bicuspidata, L. B.
fallax, L. [B.	piliferum, L. 0.	undulata, L. 0.
<i>Polytrichum undulatum</i> , L.	Schreberi, L. 0.	albicans, L.
piliferum, B.	sericeum, L.	complanata, L. 0.
juniperinum, L.	alopecurum, L. 0.	scalaris, L.
commune, L.	curvatum, L.	bidentata, L.
urnigerum, B. 0.	myosuriodes, L. B.	reptans, L. 0.
aloides, L. B.	splendens, L.	

I am not sufficiently acquainted with the Botany of the neighbourhood of London to know whether any of the above are of rare occurrence; if they are, I shall be happy to give such directions to any of your correspondents as will enable them to procure specimens for themselves. In the course of our ramble we observed *Lycopodium clavatum*, in considerable abundance, near the summit of Leith Hill, and Mr. Joseph Ward met with a solitary specimen of *Lyc. Selago*. — *C. A. Johns*; 11, *Manchester Buildings, Westminster, March 19, 1842*.

138. *New Habitat for Bryum Tozeri and Hypnum catenulatum*. In the course of a ramble with Mr. Ward from Greenhithe to Swanscombe, on Saturday last, April 9,

I had the good fortune to discover the *Hypnum catenulatum* of Schwægrichen growing on a hedge near Betsam. It differs (as you will see by the enclosed specimen) from the plant bearing the same name described by Hooker, in being furnished with a nerve which disappears above the middle of the leaf, while in Hooker's plant the nerve is not more than one fourth the length of the leaf. *Bryum Tozeri*, which has not yet, I believe, been found east of Devonshire, grows very abundantly on the perpendicular side of a deep sand-pit in Swanscombe Park Wood. Its foliage is very luxuriant, but though it bears what appears to be male fructification freely, I could not discover any setæ.—*Id.* April 13, 1842.

139. *Note on Lolium multiflorum*, (Phytol. 136). The *Lolium* I now enclose is the one mentioned at p. 136 of 'The Phytologist.' This plant was found in great profusion near Manchester in June, 1840, by Messrs. Crozier and Eversfield of that town; they sent me this plant under the name of *Lolium perenne*, var., they also sent it to my friend Mr. Leyland, of Halifax. A short time afterwards Mr. Leyland was in a seed-shop in that town, where they told him they had a new grass imported under the name of "Italian ray-grass." It struck Mr. Leyland forcibly that this must be the same as the Manchester *Lolium*, he of course procured a few of the seeds and had them sown, and on flowering, the plants turned out to be what he expected. In June, 1841, in company with my friend Mr. Baines, of York, I visited the neighbourhood of Tadcaster, to collect *Monotropa Hypopitys*, a few of the *Carices*, &c. We met with a farmer in that part who took us a little out of our way to look at a new grass he told us they had just received seeds of; on our arriving at the place it was what I expected—the Italian ray-grass.—*Samuel Gibson; Hebden Bridge, December 13, 1841.*

140. *Note on the two forms of Monotropa.* As it is not perhaps generally known that we have two very different forms of *Monotropa* growing in England, the following account of them may be acceptable to some of the readers of 'The Phytologist.'

1. *Monotropa Hypopitys* of authors. In this form of the plant the edges of the outer petals (or what Gray calls the calyx) ciliated with strong hairs; inside of the inner (or true) petals densely covered with the same kind of hairs; stamens also hairy, hairs pointing forward. This form of the plant grows in shady woods, in soil composed of the decayed leaves of trees. I have specimens of the above form from the following localities:—East Kent, collected about 1836, sent to me by my friend E. H. Bulton, Esq.: Cotswold Hills, by Mr. Lees: Reigate, Surrey, by Mr. Luxford: and from Jackdaw Crags, near Tadcaster, Yorkshire, gathered in that locality by myself. I have also a specimen from the late E. Hobson, answering to the above characters, but the locality is unknown to me.

2. *Monotropa lævipetala*, mihi. In this, the more rare form of our *Monotropa*, the outer and inner petals are smooth in every part; the stamens also are quite smooth. This plant grows in sand, as at Southport, &c. I have a specimen of this form from the north-west end of Selborn Hanger, for which I am indebted to my friend Mr. Tatham; and have seen other specimens from the same locality, all of them answering to the above characters. I have also specimens gathered at Southport in 1840, by Linnaeus Aughton (said to be the original discoverer, Phytol. 149), and others gathered by a lady in 1836. Besides these I have a specimen gathered at Southport in August, 1789, by the late James Bolton, author of 'Filices Britannicæ.' This specimen was in the herbarium of the late Dr. Dinely; that herbarium was sold by auction about twenty-five years ago, and fell into my hands for the small sum of two shillings and sixpence; it contained a few rare plants, such as *Cardamine bellidifolia*, &c. Specimens of this plant [*Monotropa*] gathered fifty

years ago perfectly agreeing with specimens gathered at the present time, will, I think, be sufficient to show that the smoothness of the petals of the Southport *Monotropa* is not accidental; and as this plant is destitute of hairs on the petals and stamens, perhaps it is destitute of smell also.—*Samuel Gibson; March 15, 1842.*

141. *List of Algae from Jersey.* The list of Guernsey Algae by Dr. Greville, (*Phytol.* 172), induces me to send you a list of Jersey Algae collected by Miss M. White, a zealous Algologist. Except a few of the commonest and largest species, I have seen and identified specimens of all of them.

<i>Cystoseira granulata</i>	<i>Naccaria Wiggghii</i> , very sc.	<i>Ptilota plumosa</i>
<i>feniculacea</i>	<i>Dumontia filiformis</i>	<i>Polysiphonia fruticulosa</i>
<i>fibrosa</i>	<i>Halymenia ligulata</i> , rather	<i>thuyoides</i>
<i>Halidrys siliquosa</i>	common	<i>nigrescens</i>
<i>Fucus vesiculosus</i>	<i>Iridaea edulis</i>	<i>urceolata</i>
<i>serratus</i>	<i>Polyides rotundus</i>	<i>fastigiata</i>
<i>nodosus</i>	<i>Furcellaria fastigiata</i>	<i>fibrata</i>
<i>canaliculatus</i>	<i>Delesseria sanguinea</i>	<i>elongata</i>
<i>tuberculatus</i> , plentiful	<i>sinuosa</i>	<i>byssoides</i>
in two spots near St.	<i>alata</i>	<i>Dasya coccinea</i>
<i>Helier's</i>	<i>Hypoglossum</i>	<i>Ceramium rubrum</i>
<i>Himanthalia lorea</i>	<i>ruscifolia</i>	<i>ciliatum</i>
<i>Lichina pygmaea</i>	<i>Nitophyllum punctatum</i> , ra.	<i>Spyridia filamentosa</i> , not
<i>confinis</i>	<i>laceratum</i>	very common
<i>Laminaria digitata</i>	<i>lacerat. β. uncinatum</i>	<i>Griffithsia equisetifolia</i>
<i>bulbosa</i>	<i>Rhodomenia laciniata</i>	<i>multifida</i> , very com.
<i>saccharina</i>	<i>Palmetta</i>	<i>corallina</i> , not uncom.
<i>Desmarestia ligulata</i>	<i>ciliata</i>	<i>setacea</i>
<i>aculeata</i> [rare]	<i>jubata</i> , common	<i>Callithamnion Hookeri</i> , ra-
<i>Sporochnus pedunculatus</i> ,	<i>sobolifera</i> , common	ther scarce
<i>rhizodes</i>	<i>Plocamium coccineum</i>	<i>tetricum</i>
<i>Haliseris polypodioides</i> , not	<i>Rhodomela subfusca</i>	<i>Conserva rupestris</i>
common	<i>pinastroides</i> , plentiful	<i>aërea</i>
<i>Padina pavonia</i> , in two pla-	<i>Bonnemaisonia asparagoi-</i>	<i>implexa</i>
ces near St. Heliers.	<i>des</i> , rare	<i>Codium tomentosum</i>
<i>Dictyota dichotoma</i>	<i>Laurencia pinnatifida</i>	<i>Calothrix confervicola</i>
<i>Punctaria plantaginea</i> , not	<i>obtusa</i>	<i>Bangia fusco-purpurea</i>
very common	<i>tenuissima</i> , rare	<i>Lyngbya majuscula</i>
<i>Asperococcus Turneri</i>	<i>Chylocladia clavellosa</i> , not	<i>Carmichaelii</i>
<i>echinatus</i>	<i>ovalis</i> [com.]	<i>Porphyra laciniata</i>
<i>Chorda lomentaria</i>	<i>kaliformis</i>	<i>vulgaris</i>
<i>Filum</i>	<i>Gigartina purpurascens</i>	<i>Ulva latissima</i>
<i>Cladostephus verticillatus</i>	<i>confervoides</i>	<i>Linza</i>
<i>spongiosus</i>	<i>Chondrus crispus</i>	<i>Enteromorpha compressa</i>
<i>Sphacelaria scoparia</i>	<i>membranifolius</i>	<i>Achnanthes longipes</i>
<i>cirrhosa</i>	<i>Sphaerococcus coronopifoli-</i>	<i>Diatoma marinum</i>
<i>Ectocarpus littoralis</i>	<i>us</i> , sometimes abun-	<i>Exilaria fasciculata</i>
<i>Chordaria flagelliformis</i>	<i>Gelidium corneum</i> [dant]	<i>Gomphonema paradoxum</i>

On a comparison of the two lists it will be found that more than thirty of the Jersey

species are not mentioned in Dr. Greville's, which however contains about twenty not included in the above list. — *John Ralfs ; Penzance, March 23, 1842.*

142. *Reappearance of Gelidium rostratum in Scotland.* Having seen in the notice of Harvey's 'Manual of British Algæ,' in 'The Phytologist' (Phytol. 124) that an observation is made on the long-disputed plant *Gelidium rostratum*, that it has not been found for thirty years; I think it will be interesting to your readers to learn that it has again made its appearance. By the kindness of Mr. Dickie of Aberdeen, I have received very fine specimens, gathered by him at intervals from December 1841 to March of the present year, the latter fresh, and with ripe fruit of both kinds, some of them eight inches long; Mr. D. had one measuring twelve. I have again examined these beautiful plants, and have requested a friend to submit them to higher powers of the microscope than I possess, and the result of both is a full confirmation of my former opinion, that it is decidedly a distinct species, differing in structure from *Delesseria alata*, and that its nearest generic affinity is *Gelidium*. Mr. Dickie informs me that some fragments were found two years since, and that he has received it lately from Montrose; and as Mr. Brodie originally discovered it at Lossiemouth, it has a considerable range of coast. Mr. Dickie also informs me that it is a deep-water plant — growing on the old stems of *Laminaria digitata*, together with *Delesseria alata* and *Pilota plumosa*, cast up after storms. — *Amelia W. Griffiths ; Torquay, April, 1842.*

143. *Note on Trichonema Columnæ.* In my paper on the Botany of Devon and Cornwall (Phytol. 160), I have stated that no plants of *Trichonema Columnæ* were found during the spring of last year on the Warren at Exmouth, the habitat referred to in the British Flora. I was induced to make this statement on the authority of a botanical friend well acquainted with the plant. From the nature of this interesting species I was induced to think that some ruthless collector had extirpated it from the Warren, as it did not appear to me probable that flowering bulbs could be in existence without disclosing their charms at the proper season. This, and to supply the wants of our Botanical Societies, led me, on Tuesday last, to visit Exmouth for the express purpose of seeking out the truth relative to it. Although rather early for it, I was gratified in finding it scattered over the waste of sand in several places, but not in abundance. It grew amongst the grass (that is, where the grass formed a kind of turf) at the western end of the Warren. *Cladonia rangiferina* is in abundance in its neighbourhood, and seems to confine it within certain limits, as I did not find a single specimen protruding from amongst this Lichen where it prevailed in large quantities. — *W. S. Hore ; Stoke, Devonport, April 7, 1842.*

144. *Narcissus poeticus.* I am informed by Miss A. Griffiths, that *Narcissus poeticus* has been found on the Warren by Mrs. Wyatt, the publisher of the beautiful volumes of Devonian Algæ. — *Id.*

145. *Note on Primula elatior.* During a recent excursion upon the continent, whilst botanizing near Spa, in Belgium, I found, growing under some nut-bushes upon the banks of one of the numerous mountain streams in the neighbourhood, three young plants of *Primula elatior* in flower. Throughout the whole of my walk I did not observe a single specimen of the other two species, — *P. vulgaris* and *veris*. The plants in question appeared to be about three years old. — *James Edward Moxon ; Leyton, Essex, April 13, 1842.*

146. *Bupleurum tenuissimum.* About the middle of last August in walking through some fields on the north of Highgate (I am unable to describe the place, as I was never there before or since), in one field I observed a quantity of *Polygonum Aviculare*

growing in a place where water had evidently stood, though then dry. Induced by its luxuriance I gathered a handful, but did not look at it until I had gone a considerable distance, when, on examination, I found I had another plant mixed with it, which proved to be *Bupleurum tenuissimum*, a specimen of which I enclose and beg your acceptance of.—*William Mitten*; 91, *Blackman St., Borough*, April 14, 1842.

[We beg our correspondent to accept our thanks for the very fine specimen he has so obligingly sent; it is larger than any we had previously seen. On turning to Milne and Gordon's '*Indigenous Botany*,' we find it recorded that this species was found "by Merret, at *Paddington* beyond the bridge in the way to *Harrow upon the Hill*, whence it is now probably extirpated." The re-discovery of this plant in the neighbourhood of the metropolis, is a very interesting circumstance.—*Ed.*]

147. *Oxlips found at Bardfield, supposed to be identical with the Primula elatior of Linnaeus.* I send you some oxlips from Bardfield, in Essex, which, from a notice in the *Gardener's Chronicle* of the 12th of March, appear to me to be identical with what the writer calls the true *Primula elatior* of Linnaeus and the German botanists. They have nodding flowers, and in no instance have I seen single-flowered stalks, as in the primrose. They vary but little, and apparently owing to some having a more favourable situation than others. They cannot be hybrids, for the primrose does not exist in the parish, and these oxlips grow by thousands in the meadows, and in moist woody places adjoining: in one instance a meadow of about two acres is entirely covered by them, being a very mass of yellow bloom. Pagils or cowslips also occur in the neighbourhood, but prefer dry ground.—*Henry Doubleday*; *Epping*, April 20, 1842.

[The *Primula elatior* "*limbo corollarum plano*" of Linnaeus, is the var. β . of his *P. veris*; var. α . *officinalis*, being our cowslip and var. γ . *acaulis*, the primrose; (*Sp. Pl.* 204, ed. 3). The passage in the *Gardeners' Chronicle* referred to by Mr. Doubleday, is given below.—*Ed.*]

148. *The Oxlip.* A notice in the *Gardeners' Chronicle* (Oct. 9, 1841),* upon the respective relations of an old and long-disputed family, the Primrose, Cowslip, and Oxlip, although correct in the main, requires a few observations to make the state of the case perfectly clear. It is probably true that the English *Primula elatior* or Oxlip (not that of Linnaeus and the continental botanists) is a hybrid between the common Primrose (*P. acaulis*) and the Cowslip (*P. officinalis*). Two reasons may be adduced for this belief: 1st, That England is almost the only country in which the Primrose and Cowslip are found in company with each other; the former being on the continent rather a southern plant, ranging from France to Calabria and Asia Minor; the latter a northern one, ranging from Finland to the top of the Alps. Both species, may, indeed, be found in mountainous parts of the south of Europe; the *P. officinalis* on the higher parts of the Apennines, and the *P. acaulis* in the low warm grounds of Florence and Naples—but not together, nor does the English Oxlip seem to be known in those countries. The union of the Cowslip and Primrose in our banks and meadows is no bad type of the climate of England, in which the representatives of the northern and southern flora are found side by side, and what wonder if a hybrid be the result? In confirmation of this view of the true place of the English Oxlip, it must be familiar to every gatherer of wild flowers that Oxlips differ greatly from one another, as seedling varieties and their descendants often do. Some are more like

* No. 148, next page.

one parent, some like another, and perhaps their produce may be neither pure nor constant. Some Oxlips are scarcely anything else than larger-flowered Cowslips, and others appear to be merely caulescent, or rather scapescent Primroses. We look in vain for a specific character. But with regard to the German Oxlip, the true *P. elatior* of Linnæus and of the German botanists, and which is not yet known to be a native of England or of north-western Europe, the case is different. It is found in great abundance throughout Germany, south of the Neckar, and as far as the Italian side of the Alps, in the pastures of the Tyrol. It seems to be subject to no varieties, and is found not intermixed with other species, unless, perhaps, with some of the Alpine species in their peculiar localities. It has a peculiar cramp habit of leaf, a rough scape, nodding flowers, swelling calyx, and is scentless. In beauty it is inferior to either our Oxlip or Cowslip, or to *P. Columnnæ* or *suaveolens* of Italy. It may rank, perhaps, with *P. Pallasii*. The English Oxlip is only known on the continent by its garden varieties, namely, the Polyanthus tribe. Perhaps the north and west of France, where the climate is the same as in England, should be excluded from these observations regarding the continent; as it is possible that Brittany and Normandy may possess both Primrose and Cowslip, and consequently the Oxlip. — *S. in Gard. Chron. March 12, 1842.*

149. *The Primrose, Cowslip and Oxlip.* In your report of the Proceedings of the Botanical Society of Edinburgh, p. 645, it is stated, in reference to the variable offspring of Polyanthus-seed, that "several members expressed their belief that the varieties arising from *Primula vulgaris* and *P. elatior* of British authors, may be correctly referred to one species; but that the *P. veris* is a distinct and well-marked species, never seen to amalgamate with, or pass into the others." Bearing on this point, one or two cases have come under my notice which seem to lead to a contrary conclusion. I once saw a number of seedlings from the Cowslip (*P. veris*), among which there was as great a diversity, both in form and colour, as is generally found in a bed of seedling Polyanthus. Many retained the Cowslip form, but varied in colour from deep yellow, through all the gradations, to dark red; others, again, approached the Polyanthus in breadth of corolla. On the other hand, the Primrose (*P. vulgaris*) does not appear to vary much in form, but only in colour, when raised from seed. At Kiplin, in Yorkshire, the seat of the Earl of Tyrconnel, there are Primroses of more than a dozen distinct shades of colour, which must originally have sprung from seed; but although there are thousands of plants, I have no recollection of ever seeing one among them with more than a single flower on a stalk, or betraying any disposition to assume the cupped corolla of the Cowslip. Might not the Oxlip (*P. elatior*) be a hybrid between the Cowslip and the Primrose? The flowers of the common Primrose on the flower-stalk of the Cowslip, would be a near approach to the Oxlip. It is much less common (at least wherever I have been) than either the Cowslip or the Primrose, which seems to indicate that it is not reproduced freely by seed. — *J. B. Whiting.* — [This is also the opinion of some good botanists]. — *Gardeners' Chronicle, October 9, 1841.*

150. *The Polygonum maritimum* mentioned in my list (Phytol. 144), I find to be an error; it is not the true *P. maritimum*, but *P. Raii*, as figured in the Supplement of Sowerby's 'English Botany.' — *J. W. G. Gutch; 38, Foley Place, February 2, 1842.*

151. *Errata.* Phytol. p. 132, line 4 from bottom, for *F. Rupert* read *F. Russell*. P. 138, line 6, for *Harmton* read *Naunton*. P. 176 line 18 from bottom, for *E. H. Button* read *E. H. Bulton*. P. 178 line 7, for *W. Charlton* read *W. Chorlton*.

ART. LXII.—*Proceedings of Societies.*

LINNEAN SOCIETY.

March 1st.—Dr. Horsfield in the chair. A present of a collection of plants from Dr. Barratt of America, was announced; the collection consisted chiefly of Carices and Eupatoria. Read, a letter from W. Borrer, Esq., in which that gentleman offered to the Society his extensive and valuable collection of foreign Phanogamous plants; including European plants from Hooker, Woods, Mertens, and others; American plants from Drummond, Gardiner, &c.; plants of Arabia, Abyssinia, the Pyrenees &c. from the Unio Itineraria; and Lippold's plants of Madeira.

March 15.—Edward Forster, Esq. in the chair. A present of a collection of plants from the Tyrol was announced. Read, a paper by Dr. H. Faulkner, on Edgeworthia, a new genus of plants from lower Afghanistan, belonging to the order Myrsinaceae; a remarkable point in which is the protrusion of the style beyond the flower, even when in bud. The only species of the genus—*E. buxifolia*, is found associated with *Dodonea dioica*, an Olea, and an undescribed Asclepiadaceous plant.

April 5th.—Robert Brown, Esq., in the chair. Specimens of *Crocus vernus*, gathered by Mr. Flower near Hornsea Church, were exhibited by him. The receipt of the herbarium of the late Professor Don, according to his bequest, was announced, as well as a collection of hard fruits and sections of woods.

BOTANICAL SOCIETY OF EDINBURGH.

Thursday, April 14th.—Professor Christison in the chair. The following communications were read.—

1. Professor Balfour of Glasgow made some remarks on the natural order Lecythidaceae, and exhibited various specimens of the fruit of *Lecythis* and *Couratari*, from Brazil. Dr. Balfour also exhibited specimens of various fossil palms, which had been found embedded in sandstone collected at Stevenston, Ayrshire, by the Rev. David Landsborough. He likewise exhibited specimens of the snake-nut, brought by Dr. Campbell from Guiana; and communicated from Mr. W. Gourlie, Glasgow, a specimen of a large *Sphæria* attached to a West-Indian caterpillar, and which had commenced its growth during the life of the animal.

2. Dr. Balfour read extracts from a letter addressed to him by Mr. Edward Forbes, dated H.M.S. Beacon, Maori, Asia Minor, February 28th, 1842. Mr. Forbes's cruise round the islands of the Archipelago, although rich in results as regards marine Zoology and tertiary Geology, had been almost fruitless in Botany, in consequence of the season.

3. Dr. Balfour read his Report on the Progress and State of Botany in Britain, from February 1840 to January 1841; being a continuation of a paper on the same subject by Dr. Greville, printed in the Society's Transactions.

4. Dr. Balfour next read a communication from Mr. Ralfs, of Penzance, on the following species of Algae.—1. *Homocladia anglica*, concerning which there appears to be considerable confusion, some looking upon Mr. Ralfs's specimens as *Schizonema xyloides*, others as *Oscillatoria chthonoplastes*; and Harvey notices them under the name of *Microcoleus marinus*. Mr. Ralfs was satisfied of his plant being the true *Homocladia anglica*, by comparing it with a specimen in the herbarium of Mr. Berkeley. 2. *Desmidiium compressum*, a new species of the genus, concerning which Mr. Berkeley remarks,—"I am quite delighted with your new *Desmidiium*; your observations are very correct. I see very distinctly the gland between each pair of segments; but as there are no separate joints in my specimen, I cannot quite ascertain its form.—It is certainly quite distinct from the other species, and a most interesting discovery." Specimens of both these Algae, as well as of *Desmidiium Borreri*, were presented to the Society.—*Abridged from the Edinburgh Evening Post and Scottish Standard of Wednesday, April 20, 1842.*

BOTANICAL SOCIETY OF LONDON.

March 18.—John Edward Gray, Esq., F.R.S., &c., President, in the Chair. The following donations were announced:—Parts 1, 2 and 3 of 'Algae Danmonienses,' and Fasciculus 1 of Berkeley's British Fungi, presented by Mrs. Margaret Stovin. British plants from the Royal Horticultural Society of Cornwall, Messrs. Edwin Lees, J. Buckman and J. G. Mitchell. British Mosses from Hewett C. Watson, Esq., V.P. Books from the Leeds Philosophical Society and Mr. H. M. Holman. The following specimens were exhibited:—*Oxalis stricta*, collected near Penzance, presented by the Royal Horticultural Society of Cornwall. *Elacodendron Argan*, Retz, collected in the province of Haha, near Deabet, Barbary, in August, 1840, by Dr. W. Willshire, and presented by him. *Hypnum polymorphum*, Hedw., collected by Mr. William Gardiner, jun. on the sands of Barrie, Forfarshire, in June, 1841, and presented by him.

A paper was read from Edwin Lees, Esq., F.L.S., being "Remarks on the Flora of the Malvern Hills in the counties of Worcester, Hereford and Gloucester. Part 2:—The Hills and their immediate Roots." In geological language the Malvern Hills form an eruptive or igneous chain, stretching in a narrow ridge nearly due North and South for upwards of nine miles. Quartz, felspar, mica and hornblende are their mineralogical ingredients in numberless varied proportions; but it must be understood that the greater part of the

mass is in a disintegrated state, breaking up into angular fragments of every size, and thus forming debris on and materials for soil at the base of the slopes, while hard masses of granitic rock, weathering the atmospheric wear and tear of centuries, are of comparatively rare occurrence. This of course tends greatly to modify the capacity of these eminences as depositories of plants; and although rising up boldly in an insular manner in the midst of a flat district, and with no superior heights near at hand, their moderate altitude precludes the growth of any alpine plants; while their complete exposure to the blaze of summer even unfits them for subalpine species that grow in shady localities farther south. This may be instanced in *Saxifraga hypnoides*, which, though it grows in the moist recesses of the Cheddar Cliffs, Somersetshire, is entirely absent from every part of this rocky range. On the other hand, *Sedum album*, which no drought can destroy, finds an appropriate home in the exposed cliffs of the principal hills here, flowering when most other plants are completely withered and burnt up by the intolerable heat.

The Phanerogamous vegetation of the Malvern Hills is by no means so varied or remarkable as might at first have been anticipated from their geographical position. But in fact the breadth of the chain nowhere amounts to a mile, and for the most part does not exceed half a mile. There are scarcely any longitudinal valleys, as in only one place does the chain break distinctly into two parallel heights, and throughout a distance of above nine miles there are but five transverse ones. The average height of the chain above the level of the sea is about 1000 feet, the highest hills attaining respectively the altitude of 1300, 1350 and 1444 feet.—According to a very accurately taken barometrical observation by Mr. Addison of Great Malvern, the Worcester-shire Beacon, which, as just stated, is 1444 feet in height by the Ordnance Survey, is only 933 feet above the library at Great Malvern, the slope at the base of the hills being thus shown to be full 500 feet above the level of the Severn. Such a moderate elevation can scarcely be expected to yield plants of an alpine kind, especially when the ravines, though not without rocks, possess none of a very precipitous character, and the streams that trickle down the hills, though abundantly musical, have but very little relation to the torrents that dash in thunder down the cliffs of stern and rugged mountainous regions. The late Mr. Purton (author of the Midland Flora) remarked that even in Wales he scarcely observed any lichens that were not to be found upon the Malvern Hills. In like manner the mosses are very luxuriant and abundant on the hills as well as in the woods around their bases, though the beautiful genus *Splachnum* seems to be altogether absent.—*Jungermannia* constitute a great proportion of the investiture of the hills, though the variety of species is not very remarkable, from the comparative scarcity of dripping rocks, yet in one shadowy ravine at least the beautiful *Jungermannia tomentella* is found. *Jung. resupinata* is rather abundant, and *Jung. ciliaris* is excessively common. The *Fungi* are pretty numerous, and, as might be expected, the *Agaric* tribe in particular is profusely scattered on the grassy declivities of the hills in the autumnal season. Many species of ferns are found in extreme profusion on the rocks as well as on every boggy declivity; and in the damp woods on either side the range, *Polypodium vulgare*, *Aspidium aculeatum* and *lobatum* and *Asplenium Filix-feminae* are particularly abundant; while *Pteris aquilina* covers the sides of the hills in every part. Among the rarer species are *Allosorus crispus* and *Polypodium Dryopteris*, while *Asplenium viride* grows on an old bridge across the Teme, about eight miles north of Great Malvern, on the extreme verge of the district. *Aspidium Oreopteris* is rather plentiful wherever a boggy soil presents itself. *Grammitis Ceterach*, though occurring on old walls at Great Malvern, can scarcely be called a legitimate denizen, for not a stray individual occurs on any of the rocks.

The *Eriophori* are almost the only vascular plants that give anything like a subalpine aspect to the vegetation of Malvern, and even these now only occur in a few favoured spots. *Eriophorum polystachion* and *pubescens* give a pretty aspect to the bogs on the western side of the hills, to which at the present time they are limited; while *E. angustifolium* occupies marshy spots in the low country on the eastern side. The *Cyperaceae* are pretty abundant in the numerous wet spots about the hills, though mostly of small size, and none very rare or peculiar. The following species have been gathered.—

<i>Scirpus setaceus</i>	<i>Carex vulpina</i>	<i>Carex Pseudo-cyperus</i>	<i>Carex recurva</i>
<i>Blymus compressus</i>	<i>teretiuscula</i>	<i>pallascens</i>	<i>caespitosa</i>
<i>Eleocharis palustris</i>	<i>stellulata</i>	<i>flava</i>	<i>stricta</i>
<i>multicaulis</i>	<i>curta</i>	<i>Cederi</i>	<i>acuta</i>
<i>pauciflora</i>	<i>ovalis</i>	<i>fulva</i>	<i>paludosa</i>
<i>Carex dioica</i>	<i>remota</i>	<i>binervis</i>	<i>riparia</i>
<i>pulicaris</i>	<i>axillaris</i>	<i>præcox</i>	<i>vesicaria</i>
<i>intermedia</i>	<i>pendula</i>	<i>pillulifera</i>	<i>ampullacea</i>
<i>muricata</i>	<i>sylvatica</i>	<i>panicea</i>	<i>hirta</i>
<i>divulsa.</i>			

The most abundant grasses forming the turf of the hills are *Anthoxanthum odoratum*, *Cynosurus cristatus*, *Festuca ovina*, *Agrostis vulgaris*, *Avena flavescens*, *Aira flexuosa*, *præcox* and *caryophyllæ*: those of rarer occurrence are *Aira cristata*, *Tridax decumbens*, *Festuca Myurus*, *Glyceria rigida* and *Nardus stricta*.—The latter indeed is plentiful on the commons at the eastern base of the hills, with most of the commoner grasses. Mr. L. had seen *Avena fatua* in wheat-fields at the base of the hills almost as plentiful as the corn among which it grew. The former marshy state of the country at the eastern base of the hills is shown by the abundance, in spots not yet fully drained, of *Poa aquatica* and *fluitans*, *Phalaris arundinacea*, *Arundo Phrag*

tes, *Ostrea aquatica* and *Calamagrostis Epigejos*; the latter of which forms a dense fringe to the hedges and ditches in marshy fields. The genus *Typha* is not very common in the district, although in one or two spots *T. angustifolia* rather prevails. On the rocks appear:—

<i>Cotyledon Umbilicus</i>	<i>Sedum acre</i>	<i>Potentilla argentea</i>	<i>Trifolium striatum</i>
<i>Arenaria rubra</i>	<i>Telephium</i>	<i>Corydalis claviculata</i>	<i>Gnaphallium minimum</i>
<i>Sedum album</i>	<i>Potentilla verna</i>	<i>Ornithopus perpusillus</i>	<i>Solidago Virgaurea</i>

On boggy ground.—

<i>Veronica scutellata</i>	<i>Eriophorum polystachion</i>	<i>Hydrocotyle vulgaris</i>	<i>Spergula nodosa</i>
<i>Pinguicula vulgaris</i>	<i>Montia fontana</i>	<i>Helosciadium repens</i>	<i>Triglochin palustre</i>
<i>Blymus compressus</i>	<i>Anagallis tenella</i>	<i>Dresera retundifolia</i>	

Besides the grasses and Carices before mentioned.

In the meadows and commons about the eastern part of the hills. —

<i>Plantago Coronopus</i>	<i>Euphrasia officinalis</i>	<i>Cnicus acaulis</i>	<i>Habenaria viridis</i>
<i>Allium vineale</i>	<i>Marrubium vulgare</i>	<i>Anthemis nobilis</i>	<i>bifolia</i>
<i>Polygonum Bistorta</i>	<i>Mentha piperita</i>	<i>Orchis Morio</i>	<i>chlorantha</i>
<i>minus</i>	<i>Calamintha officinalis</i>	<i>Gymnadenia conopsea</i>	<i>Neottia spiralis</i>

Ranunculus parviflorus

In thickets at the foot of the hills and skirting their bases, wild roses are exceedingly abundant and beautiful, and Mr. Lees had collected the following:—

<i>Rosa spinosissima</i>	<i>Rosa tomentosa</i>	<i>Rosa rubiginosa</i>	<i>Rosa Forsteri</i>
<i>villosa</i>	<i>inodora</i>	<i>canina</i>	<i>systyla</i>
<i>scabruscula</i>	<i>micrantha</i>	<i>dumetorum</i>	<i>arvensis</i>

The deep-coloured blossoms of *Rosa villosa* are very remarkable, and the pale ones of *R. scabruscula* characteristic; *R. micrantha* and *systyla* are of frequent occurrence.

The *Rubi* are of equal if not superior luxuriance, in many remarkable forms, which are still under Mr. Lees' observation. It may be here sufficient to state that the glandulose forms are rather abundant: *Rubus carpinifolius* seems the most uncommon species.

In the woods oak (*Quercus Robur*) predominates above every other tree, and on the ridge-way in Eastnor Park is one about 150 years old, which is adorned with a fine coronal of mistletoe. *Q. sessiliflora* also presents itself, but assuredly much less in quantity than the former, though it boasts a white-leaved variety not mentioned by botanists, so far as Mr. Lees was aware of. A hamlet occupying the valley between the Ragged Stone and Keynard Hills (the two most southerly ones of the chain), bears the appellation of "The White-leaved Oak," but after several visits to the place Mr. L. could never find any remarkable oak there, and was indeed assured by a man who had known the vicinity many years, that there had formerly been an oak there with light or whitish foliage, but that it had been cut down. Here the matter rested till 1841, when wandering about the syenitic protuberances at the extreme northern termination of the hills, Mr. L. fortunately came upon an oak whose leaves were variegated with white, growing on one of these rocky knolls, and it proved to be *Quercus sessiliflora*, doubtless similar in the character of its foliage to the old "White-leaved Oak" that has bequeathed its name to the hamlet before mentioned.

The prevalence of West, South-west and Southern winds at Malvern, especially during the winter and spring months, gives an almost perpetual moisture to the grassy turf favourable to Cryptogamic growth; but the violence of the winds has the effect of keeping the Phænogamic vegetation in a very dwarf state, especially near the summits of the hills. This is observable particularly in *Carlina vulgaris*, which is often very luxuriant at the base of the hills and only a few inches in height on the summit of the Herefordshire Beacon. — Other plants seem influenced in the same way, as *Myosotis collina*, which on the ridge scarcely peers above the soil and is excessively hirsute. The following are the rarer plants not alluded to in Mr. Lees' former paper.

<i>Veronica montana</i>	<i>Tulipa sylvestris</i>	<i>Aquilegia vulgaris</i>	<i>Genista anglica</i>
<i>Myosotis collina</i>	<i>Colchicum autumnale</i>	<i>Helleborus viridis</i>	<i>Lathyrus Nissolia</i>
<i>versicolor</i>	<i>Vaccinium Myrtillus</i>	<i>Mentha Pulegium</i>	<i>Vicia Bithynica</i>
<i>Cynoglossum sylvaticum</i>	<i>Polygonum Bistorta</i>	<i>Nepeta Cataria</i>	<i>Hypericum calycinum</i>
<i>Hyoscyamus niger</i>	<i>Pyrola minor</i>	[<i>Hum</i> <i>Lathraea squamaria</i>	<i>Androsæmum</i>
<i>Campanula patula</i>	<i>Chrysosplenium alternifo.</i>	<i>Antirrhinum Orontium</i>	<i>dubium</i>
<i>latifolia</i>	<i>Sedum Telephium</i>	<i>Orobancha major</i>	<i>Tragopogon pratensis</i>
<i>Trachelium</i>	<i>album</i>	<i>Lepidium Smithii</i>	<i>minor</i>
<i>Viola hirta</i>	<i>Spirea Filipendula</i>	<i>Cardamine impatiens</i>	<i>Gnaphallium sylvaticum</i>
<i>Linum usitatissimum</i>	<i>Potentilla argentea</i>	<i>amara</i>	<i>Conyza squarrosa</i>
<i>Galanthus nivalis</i>	<i>verna</i>	<i>Erodium cicutarium</i>	<i>Pulicaria vulgaris</i>
<i>Narcissus Pseudo-narcis-</i>	<i>Tilia grandifolia</i>	<i>maritimum</i>	<i>Listera Nidus-avis</i> , and
<i>biflorus</i>	[<i>aus</i> <i>parvifolia</i>	<i>Geranium lucidum</i>	<i>Orchidea</i> before named

Many of the specimens were exhibited, and Mr. Lees proposed to advert to the Cryptogamic vegetation of the hills (sending specimens to the Society) in a future paper.—G. E. D.

